Technical Reference Manual

IR-320

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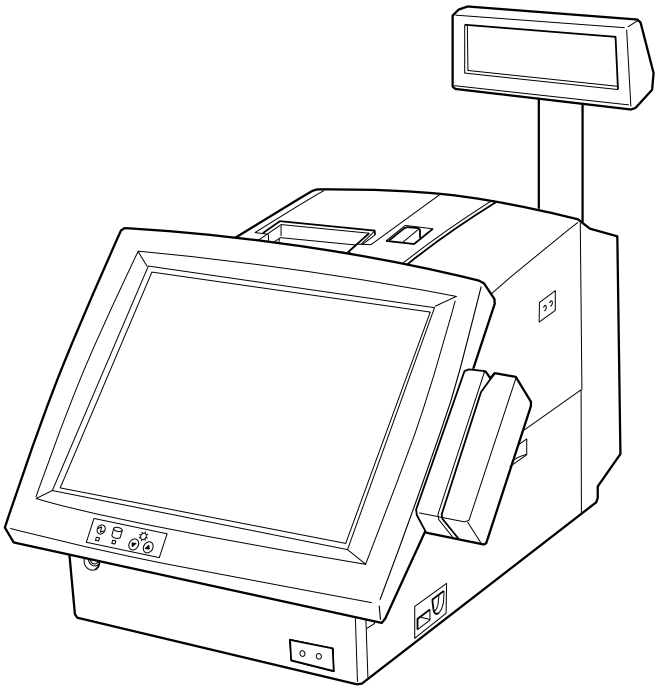

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Revision Information

Revision	Page	Altered Item and Contents
Rev. A		First release
Rev. B	1-16	Change the DSW1 settings
	3-25	Add the OS Recovery method of step 4
	B-3	Add the Jumper and Switch Settings
Rev.C	3-65,66,67,68,69 5-1,14,15,16,27	Add the HDD Power Down Settings.
	5-1,12,14,15,16,25,27	Add the BIOS Ver.2.11.02.
	1-18,19,20,21	Change the Dimensions.
	5-12,25	Add the Onboard Lan Boot ROM.

Key to Symbols

The symbols in this manual are identified by their level of importance, as defined below. Read the following carefully before handling the product..

⚠ WARNING:

Provides information that must be followed carefully to avoid bodily injury.

⚠ CAUTION:

Provides information that must be observed to prevent damage to the equipment or loss of data.

❏ Possibility of causing bodily injuries.

❏ Possibility of causing physical damage.

❏ Possibility of causing information loss.

✎ ***Note:***
Provides important information and useful tips on the operation of the equipment and the necessary limitation matters to maintain the performance of the product,

Precautions

⚠ WARNING:

❏ Turn off the main power switch immediately and unplug the power cable if the IR-320 produces smoke, a strange odor, or unusual noise.
Continued use may lead to fire or electric shock. Contact your dealer or an EPSON service center for advice.

❏ Never disassemble or modify this product.
Tampering with this product may result in injury, fire or electric shock.

❏ Never install this product and connect the cable while occurring thunder to avoid shock.

❏ Always use a specified power supply.
Using the other power supply may lead to fire or shock.

❏ Never insert or disconnect the power plug with wet hands.
Doing so may result in severe shock.

❏ Do not allow foreign objects to fall into this product.
These foreign objects may lead to fire or shock.

❏ If water or other liquid spills into this product, turn off the power switch, unplug the power cable immediately.
Continued usage may lead to fire or shock.

- ❏ Do not place multiple leads on the power outlet. Overloading the outlet may lead to fire. Always supply power directly form a standard domestic power outlet.

- ❏ Handle the power cable with care.
  Improper handling may lead to fire or shock.

  Do not modify or attempt to repair the cable.

  Do not place any heavy object on the cable.

  Avoid excessive bending, twisting, and pulling of the cable.

  Do not place the cable near heating equipment.

  Check that the plug is clean before plugging it in.

  Be sure to push the prongs all the way in.

- ❏ Make sure that the wall outlet can be accessed easily in order to unplug the power cable from it immediately in case of emergency.

- ❏ Regularly remove the power plug from the outlet and clean the base of the prongs and between the prongs.
  If you leave the power plug in the outlet for a long time, dust may collect on the base of the prongs, causing a short and fire.

⚠ CAUTION:

- ❏ Do not connect devices other than those specified in this manual.
  Doing so may result in fire or improper operation.

- ❏ Do not set this product in the unstable place (such as on a shaky stand or a place that is not level).
  The product may break or cause injury if it falls.

- ❏ Do not use the unit in locations subject to high humidity or dust levels.
  Excessive humidity and dust may cause equipment damage, fire or shock.

- ❏ Do not stand or place any heavy object on top of this product.
  The equipment may fall or collapse, causing breakage and possible injury.

- ❏ When leaving this product unused for a long time, always unplug it from the outlet to ensure safety.

- ❏ The devices of the circuit board may become hot. Turn off the power and wait 10 minutes before accessing them.

- ❏ Wait more than 10 seconds after turning off the power supply before turning it on again.

- ❑ Do not use the product in the place where inflammable liquids (gasoline, benzine or thinner) may be in the air.
  Doing so may cause an explosion or fire.

- ❑ Do not drop, bump or otherwise subject this product to strong vibration or impact.
  Doing so may damage the product.

- ❑ Do not block the openings on this product that protect it from overheating.
  Overheating may lead to fire.

  Do not place this product in a narrow place with bad ventilation such as a closet or a bookcase.

  Do not place this product on a carpet or a cushion.

  Do not cover this product with cloth such as a blanket or a tablecloth.

- ❑ Do not connect the unit to an AC outlet that is close to devices that generate voltage fluctuations or electrical noise. In particular, stay clear of devices that use large electric motors.
  The IR-320 and the POS system may not function correctly.

- ❑ Always connect the power cable to the AC inlet of this product before plugging it into the wall outlet.

- ❑ Be sure to push the plug of the power cable into the AC inlet of this product.

- ❑ When the power cable for the TM printer is connected, do not short-circuit its connector pins.
  Because pins are exposed, this connector may lead to the short-circuit when not connected to the TM printer.

- ❑ Do not insert fingers or foreign matter into the CD-ROM drive disk tray or the CD-R/RW drive disk tray or openings.
  Doing so may lead to fire, shock or injury.

- ❑ Never hold up this product by the rear cover, the CD-ROM drive disk tray or the CD-R/RW drive disk tray or the front panel.
  It may fall can cause damage or injury.

- ❑ Make sure that the total power requirements of all devices receiving power from this product do not exceed the power limitation.
  It may cause trouble.

- ❑ Always use this product with the rear cover and the side cover attached.
  If they are not attached, foreign matter may enter this product and it may result in fire or improper operation.

- ❏ When the protection circuit of the IR-320 operates (such as, in case of over-current or when the temperature rises extraordinarily), turn off the side (main) power switch and leave it off about 10 minutes after solving the problem; then turn on the side switch and the front power switch in order again.

Note:

- ❏ Be sure to use EPSON supplied or specified DIMMs, HDDs, and CPUs.
- ❏ If you install a board in the PCI slot, use one that was confirmed by EPSON. Contact your EPSON dealer for a list of approved devices. If you use any other device, please consider that it is your responsibility to choose the correct device.
- ❏ When installing an application, find out from the dealer where you bought it whether it is appropriate.

About This Manual

Aim of the Manual

This manual was created to provide information on the IR-320 for anyone who is developing applications.

Contents of the Manual

The table below is just a summary. A complete table of contents appears at the end of this section. See it for detailed information and page numbers.

The configuration of the manual is as follows:

Chapter 1,"IR-320 System Overview"	Describes the hardware configuration, the software configuration, the jumper position, and others
Chapter 2,"Setup"	Describes how to set up the IR-320 and its options
Chapter 3,"OS Information"	Describes the preinstalled OS (Windows 2000/ NT/98/95, MS-DOS) and the configurations and setups of various drivers
Chapter 4,"Utilities"	Describes each utility and how to set them up
Chapter 5,"BIOS setup"	Describes the BIOS setup.
Chapter 6,"Device Diagnosis Utility"	Describes the Device Diagnosis Utility
Chapter 7,"Hardware Specifications"	Describes items such as system, memory, interruption, switch, and indicator

Appendix A,"Wake On LAN"	Describes the BIOS setup, the Power On Self Test, and the device self-diagnosis utility
Appendix B,"IR-310 versus IR-320"	Describes differences between the IR-310 and IR-320
Appendix C,"Serial Handshaking"	Describes the Serial Handshaking

Related Manuals

Related Manuals

Name	Comments
IR-320 User's Manual	Describes the basic setup and operation procedure.
IR-320 Service Manual	Describes the maintenance and repair procedure for IR-320 service engineers.

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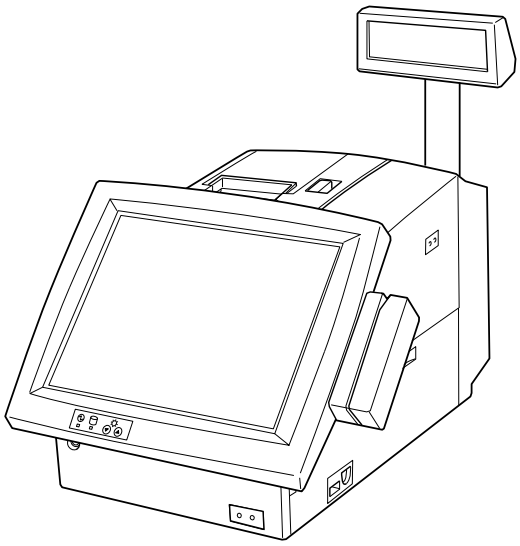
Chapter 1

IR-320 System Overview

About the IR-320

The IR-320 is a POS personal computer with a built-in touch panel. In addition to capability of Network connection, the IR-320 is flexible for configuring various systems with abundant devices in an OLE-POS based system.



Model Configuration

The IR-320 has various model configurations with combinations of an operating system, CPU, HDD, CD-ROM drive, LCD unit, and printer. Please contact your dealer for details.

Unpacking

For the unpacking, see the User's Manual packed with the system.

IR-320 Features

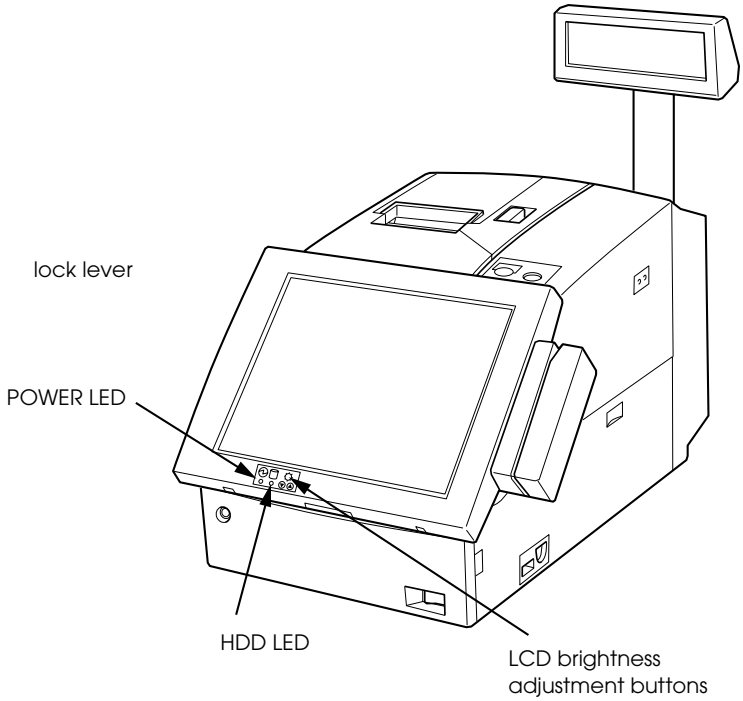
- ❑ Simplicity
  - Employing the touch panel enables even a beginner to operate the product easily. It is possible to learn how to use the system in a very short time.
  - It is designed for quick and easy setup and maintenance.
- ❑ Space saving
  - All the functions needed for the POS system, such as the printer and the LCD with the touch panel, are in the small space of 252 mm wide and 457 mm deep (including the rear cover).

- ❑ Abundant options for superior expandability
  - A model having the type of LCD and printer that meet a customer's need can be selected.
  - Various options such as the CD-ROM drive, Front CompactFlash Adapter, 28- key unit, and MSR unit can be installed.
  - Various peripherals can be connected to the PCI slots and serial ports.
  - It has an AC outlet that can work together with the system.
- ❑ Security
  - Data can be protected from being stolen by key-locking of the front cover.
  - Six access levels can be set by using different types of manager keys. Owners or managers can set different levels of access to the system.
  - The battery backup (option) can prevent data from being lost due to a power out.
- ❑ High performance
  - Power and speed needed for processing data is offered.
  - Memory can be expanded to a maximum of 512 MB.
  - The BIOS supports APM 1.2, ACPI 1.0b, Plug & Play, SMBIOS 2.2 (DMI), and Wake On LAN.

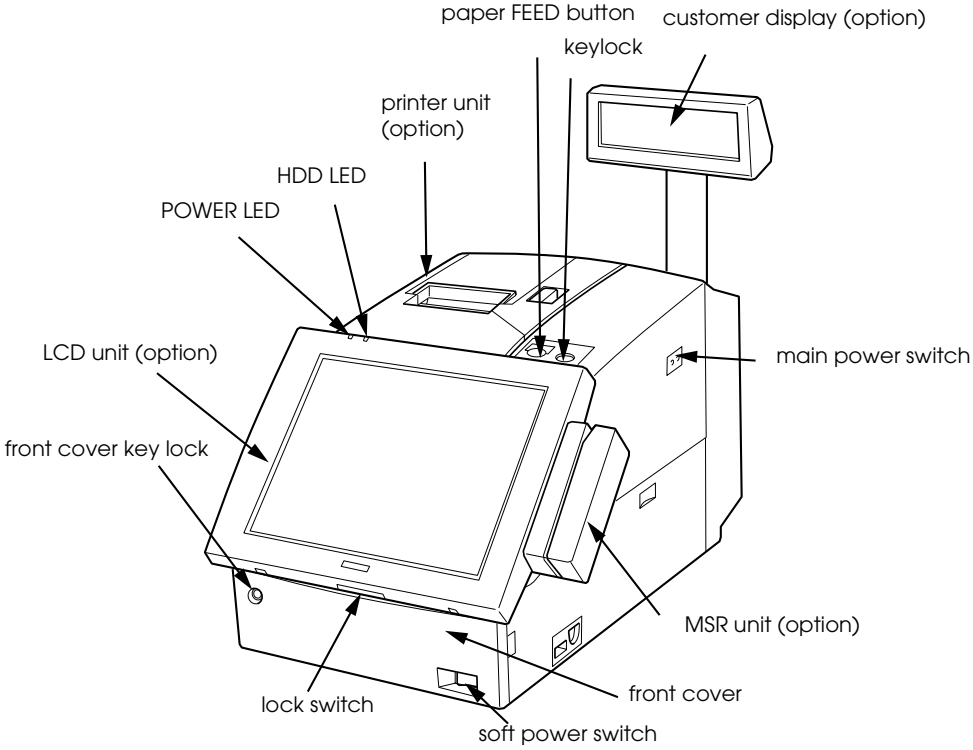
Part Names

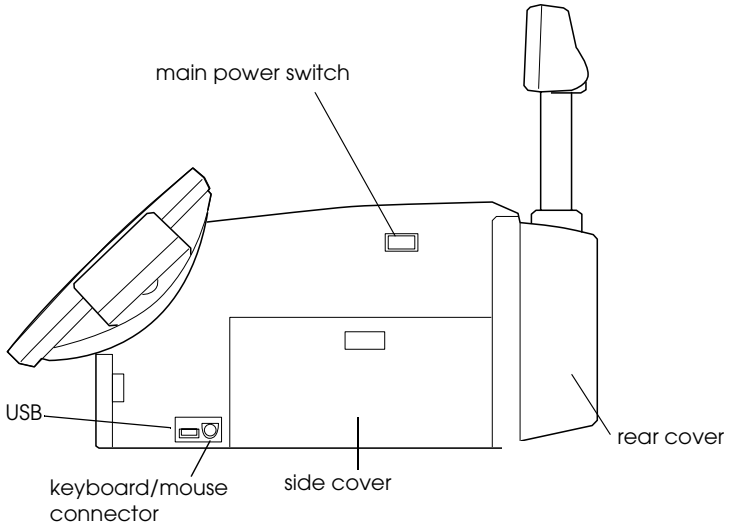
The figures below show the part names of the IR-320.

DM-LR121Series LCD Display Unit

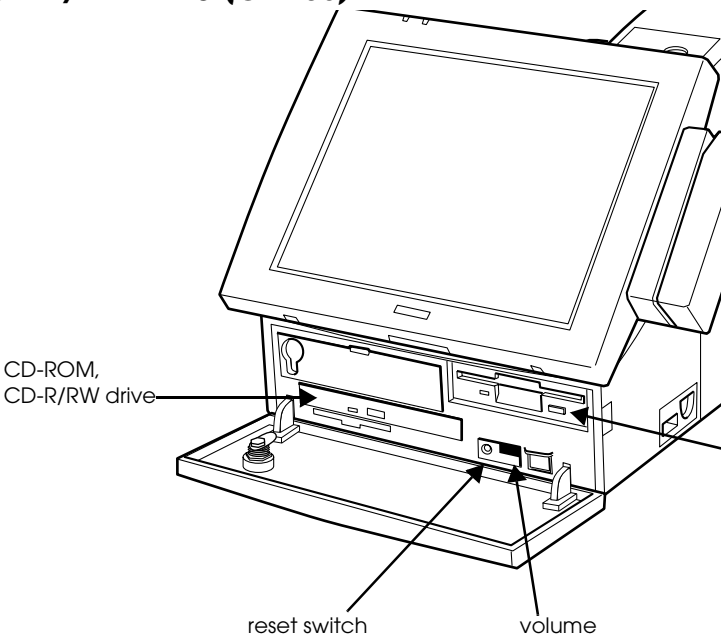


DM-LR104T LCD Display Unit

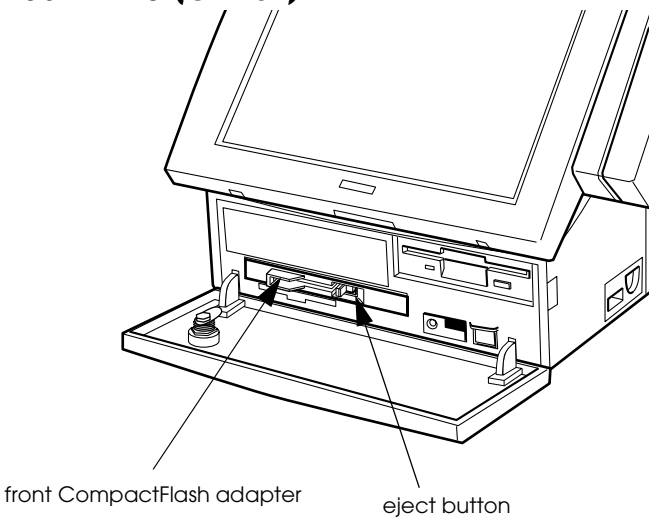




CD-ROM, CD-R/RW Drive (OI-R06)

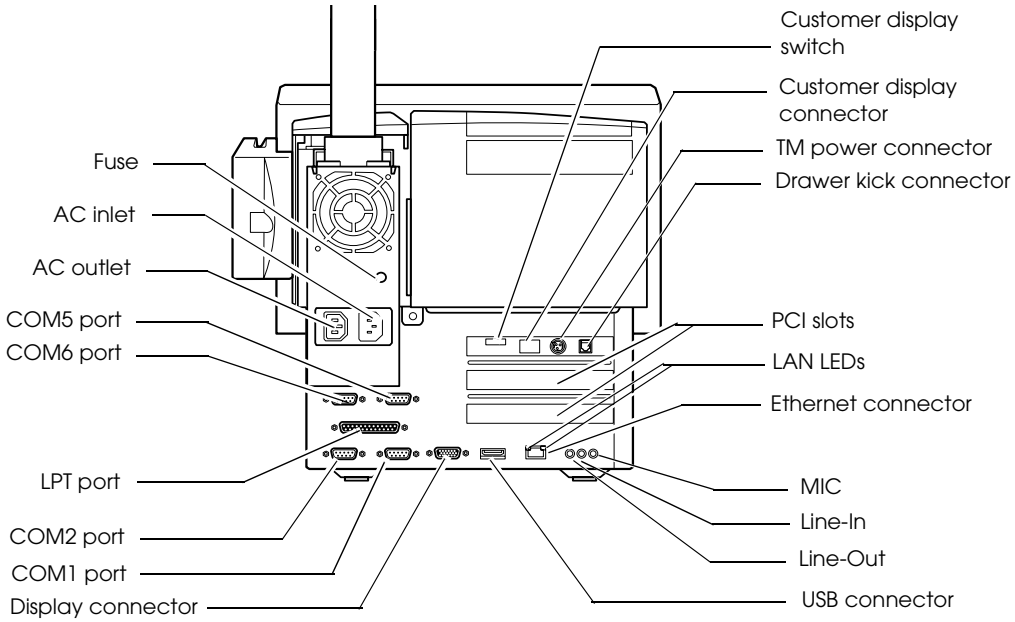


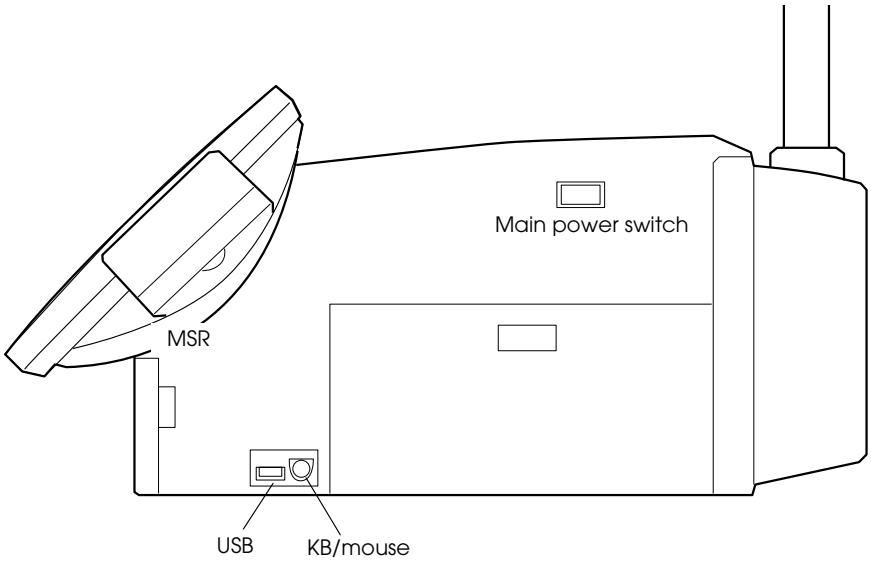
Front CompactFlash Drive (OI-R07)



Connector Names

The figures below show the connectors on the IR-320.





Hardware Configurations

The IR-320 is an IBM® PS/2®-compatible system specifically designed for the POS environment. The IR-320 has the following features:

- ❑ Intel Celeron processors are used. These high speed CPU processors offer the power and speed needed for data processing.
- ❑ Two 168-pin DIMM sockets enable a maximum of 512MB RAM memory.
- ❑ One 88.9 mm {3.5"} HDD or two 63.5 mm {2.5"} HDDs can be installed internally.
- ❑ An optional CD-ROM drive , CD-R/RW drive or FrontCompactFlash adapter can be installed internally.
- ❑ An Ethernet controller supports 10 BASE-T/100 BASE-TX.
- ❑ Contains two PCI slots.
- ❑ Compact size of 252 × 386 × 250 mm (W × D × H) {9.9 × 15.2 × 9.8"}(Without Rear Cover).
- ❑ An AC outlet (max. 3A) that is on whenever the system is on.

Model Configurations

The IR-320 can be configured with the following optional units:

- ❑ LCD units (with touch panel)
  SVGA LCD unit (with touch panel)

264 mm {10.4"} color TFT	Model name DM-LR104T
310 mm {12.2"} color TFT	Model name DM-LR121SL *
310 mm {12.2"} color TFT	Model name DM-LR121SV

- ❑ POS keyboard units

84-key	Model name DM-KR084
28-key	Model name DM-KR028

- ❑ Printer units

Thermal printer (58 mm, 80 mm {2.3", 3.2"})	Model name TM-T88IIIR
Serial dot impact printer	Model name TM-U210AR **
Thermal receipt with slip	Model name TM-H3000R

- ❑ MSR units

ISO/JIS I tracks 1, 2, and 3	Model name DM-MR123

- ❑ Customer display units

20 × 2-line display	Model name DM-D110
20 × 2-line display	Model name DM-D210
256 × 64 dots graphic display	Model name DM-D500

- ❑ Battery unit (for IR-320/IR-310) Model name OI-R03-021

* For Europe, only project base.
** For Europe, not longer available.

- ❑ CD-ROM drive (for IR-320/ IR-310) Model name OI-R06-002
- ❑ CD-R/RW drive (for IR-320/ IR-310) Model name OI-R06-202
  (An application that writes to the CD-R/RW must be added.)
- ❑ Front CompactFlash Adapter (for IR-320/IR-310)
  Model name OI-R07
- ❑ Memory
  256MB Model name OI-DIMM-256
  128MB Model name OI-DIMM-128
- ❑ HDD
  2.5" HDD Model name OI-HDD-300
  3.5" HDD Model name OI-HDD
- ❑ TM printer tray
  For TM-H6000 Model name OI-R01-022
  For other TMs Model name OI-R01-001
- ❑ TM printer
  Printer tray setting type Model name TM-U200 series
  Model name TM-H6000 series
  Model name TM-T88II series
- ❑ External mounting type Model name TM-U675 series
  Model name TM-T285 series
  Model name TM-H5000 series

Operation Testing Products for IR

The Operation Confirmed items are marketed by EPSON and are built-in, included, or connected to an EPSON POS product, and operation by has been confirmed by EPSON. EPSON can also offer reference information for the selection of peripheral devices to the customer who constructs a system using EPSON POS products. Please inquire what kind of device can be used from EPSON or the selling agent.

This operation confirmation evaluates the equipment in test environments and conditions, but it does not guarantee the operation. Therefore, procurement and evaluation by the customer are required.

Software Configurations

BIOS Setup and Self-Diagnosis Functions

BIOS setup defines the system configuration. When the product is set up for the first time, run this program to set the system environment. To change the operating environment, run this program again. See Chapter 5, "BIOS Functions."

Operating Systems

The IR-320 runs on the standard Microsoft operating systems: MS-DOS®, Windows® 98 Second Edition, Windows NT® WorkStation 4.0, Windows 2000 Professional and Windows XP Professional.

Windows 2000 Professional, Windows NT Workstation 4.0 and Windows 98 Second Edition can select the EPSON pre-installed HDD.

The IR-320 Driver CD-ROM that includes an appropriate driver for an operating system is included.

See "OS Information" in Chapter 3.

Note:
The USB interface is not supported by Windows NT, and MS-DOS. (Windows NT supports the USB Keyboard.)

Be sure to make the recovery media and back up the data. See "Recovering the OS" in Chapter 3 for details. When you need to repair the HDD, use the recovery disk.

Utilities

Driver software and utilities software that operate and set peripherals are provided for the IR-320.

Appropriate setting utility software is provided for each peripheral related to keyboard firmware such as 28-key unit, MSR unit, and key lock.

Windows driver software is provided for the printer, customer display, and drawer. Contact your dealer for the latest drivers and utilities information.

Operation Modes

The IR-320 has the following five operation modes.

(1) Mechanical Off Mode

In the mechanical off mode, the main power switch is off. No power is supplied to the IR-320 main body, and the power in all circuits is off.

To turn on the power to the IR-320, first turn on the main power switch.

(2) Soft Off Mode

In the soft off mode, only the main power switch is on. Items such as the clock circuit, backup circuit, and power management circuit inside the IR-320 are on in the standby state. To save the backup data after the power is off, the main power switch should remain on.

When the system is in the soft off mode, it can be put in full on mode by software, by pressing the soft off switch, by a wake up signal from the LAN or by a ring signal from the modem.

(3) Full On Mode

In the full on mode, the main power switch and the soft power switch are on. The system is in the normal operating state. Even if the system is started by a wake-up request signal from the LAN, the full on mode is produced.

To turn off the IR-320 power, turn the power off from the software. The power-off operation differs slightly, depending on the setting of the APM driver. See Chapter 4 “Utility“.

(4) Video Off Mode

When no input operation is performed for a given period of time during operation in the full on mode, only the LCD and the backlight circuits are turned off, thus extending the service lifetime for the LCD peripheral parts.

Depending on which operating system (OS) is used, the setup method for the time for transfer to the video off mode differs. The setup method for each OS is described below.

Windows NT does not support the video off mode; therefore, the LCD and the backlight circuits cannot be turned off during operation.

Type of OS	Setup method for time of transfer to video off mode
Windows XP	Set by (Power Options) property — (Turn off monitor)
Windows 2000	Set by (Power Options) property — (Turn off monitor)
Windows 98	Set by (Power Management) property — (Turn off monitor)
MS-DOS	No setting

When “Power Button Tool“ is installed, Win 98 and Win 2K can realize “No-Operation“.

In the video off mode, the unit immediately returns to the full on mode when input is received from the keyboard, mouse, or touch panel.

Note that the reset operation differs, depending on the BIOS setting for the switch, when the soft power switch is pressed during the video off mode.

Type of OS	OS Setting	BIOS (Soft-Off by PWR-BTTN) setting		
		Instant-Off	Delay 4 Sec.	Disabled
Windows XP	Shutdown	Full-on	Full-on	Shutdown
	Standby	Full-on	Full-on	Standby
	Never	No-Operation		
Windows 2000	Shutdown	Full-on	Full-on	Shutdown
	Standby	Full-on	Full-on	Standby
Windows 98	Standby	Full-on	Full-on	Standby
MS-DOS		Forced power off	Reset to the full on mode	

When “Power Button Tool“ is installed, Win 98 and Win 2K can realize “No-Operation“.

For Windows 2000, even if the soft power switch is pressed accidentally in the video off mode, it stays in the video off mode.

(5) Suspend Mode

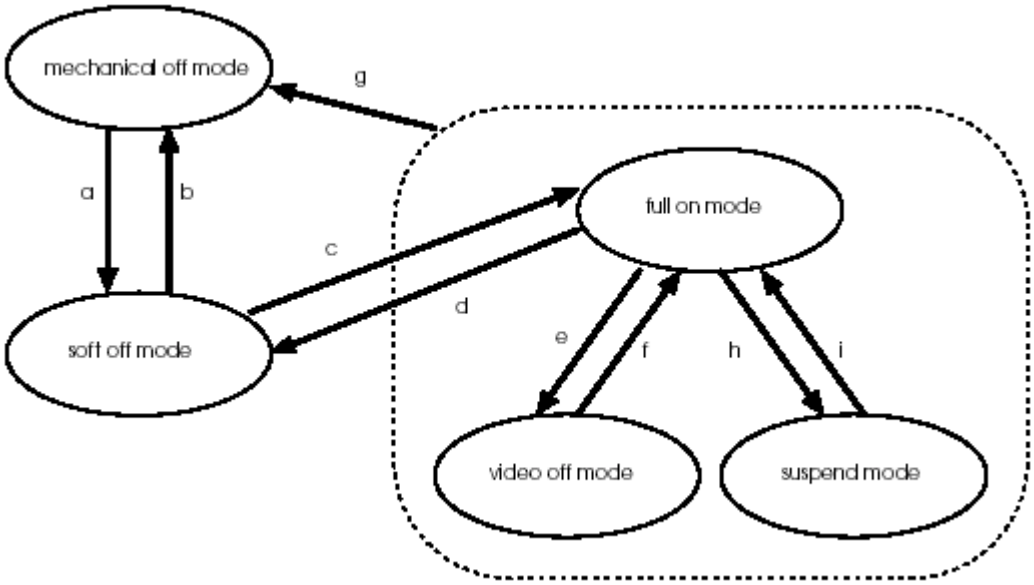
Turning off such items as the LCD, backlight circuit, and CPU when there is no input operation for a specified time period in the full on mode extends the life of these parts.

In Windows 98, click **Start**, select **Shut Down**, and then select **Standby** in the **Shut Down** dialog. In Windows NT, do not set up **Suspend**, because the system clock is delayed..

Type of OS	Setup method for time of transfer to suspend mode
Windows XP	Set with (Power Management) property — (System Standby)
Windows 2000	Set with (Power Management) property — (System Standby)
Windows NT	Do not set up.
Windows 98	Set with (Power Management) property — (System Standby)
MS-DOS	Set with BIOS (Suspend Timer)

In the suspend mode, the mode is immediately reset to the full on mode when input is received from the keyboard, mouse, HDD,FDD or touch panel. Also, the suspend mode is always changed to the full on mode when the soft power switch is pressed, regardless of the BIOS switch setting.

The status transition between each operation mode is as follows.



a. Main power switch on

b. Main power switch off or power off forced by AC power cutoff

c. Soft power switch on , wake-up request signal received from the LAN or ring signal from the modem.

d. System shutdown by software (The operation differs, depending on the dedicated APM driver setting. See Chapter 4 “Utility“.) and forced power off by pressing the soft power switch (if the dedicated APM driver is used)

e. Transfer to the video off mode after no input operation for a specified period or selection of video off mode at Operation System.

f. Input operation from keyboard, mouse, or touch panel
Reset by pressing the soft power switch (if the dedicated APM driver is used)

g. Main power switch off or forced power off because of AC power cutoff

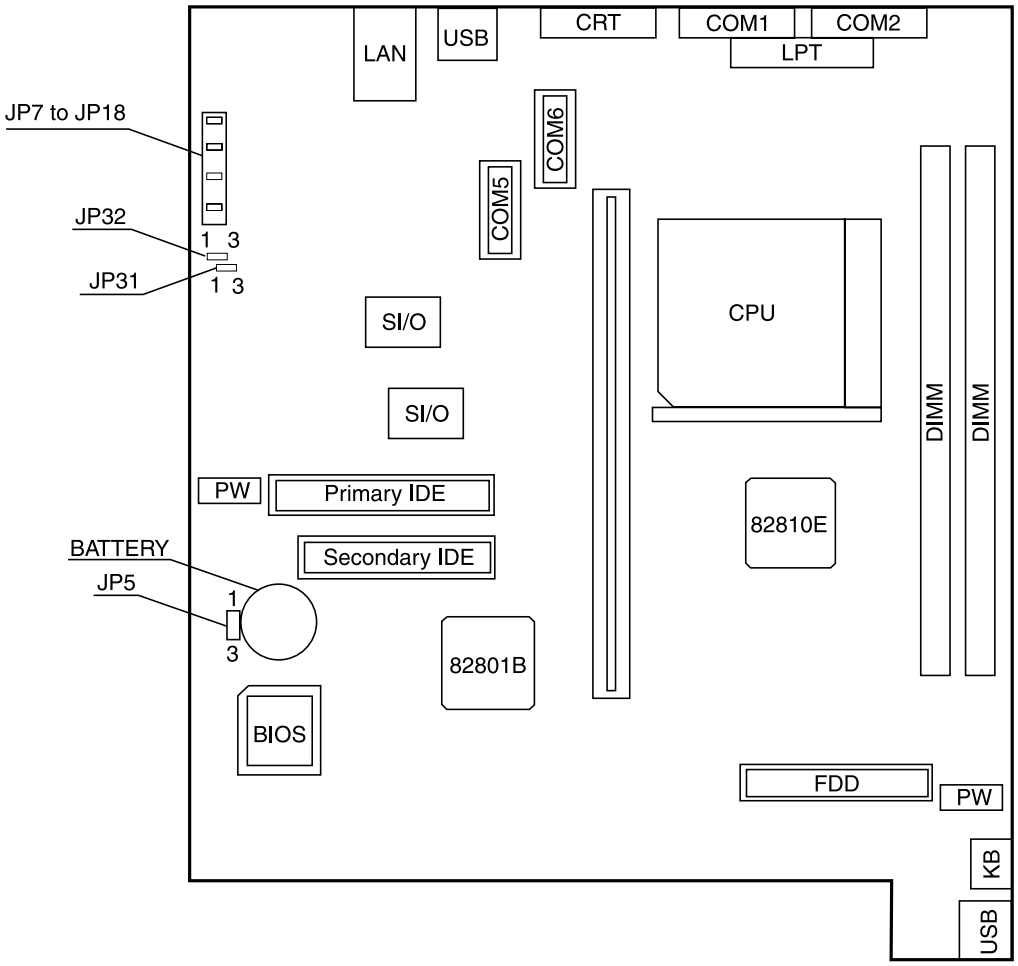
h. Transfer to suspend mode because of no input operation for a specified period or selection of suspend mode at Operation System.

i. Input operation from keyboard, mouse, or touch panel
Reset by pressing the soft power switch

Jumper Locations and Settings

Main Board Jumpers

The figure below shows the locations of the main board connectors and jumpers.



List of main board jumpers

Address	Default setting	Description	Remarks
JP1	1-2	For system use	Not changeable
JP5	1-2	Do not clear/clear RTC and CMOS	See "JP5 settings (RTC and CMOS clear)," below
JP7	Short	COM1 power output setting	See "Settings for JP7 to 18 (COM1, COM2, COM5, COM6 power output)," below
JP8	Open		
JP9	Open		
JP10	Short	COM2 power output setting	
JP11	Open		
JP12	Open		
JP13	Short	COM5 power output setting	
JP14	Open		
JP15	Open		
JP16	Short	COM6 power output setting	
JP17	Open		
JP18	Open		
JP 25	1-2 fixed	For system use	Not changeable
JP31	1-2	TM reset polarity setting	See "JP31 settings (TM reset polarity settings)" on page 1-15
JP32	1-2	TM/customer display flow control	See "JP32 settings (TM/customer display flow control)" on page 1-15

JP5 settings (RTC and CMOS clear)

JP5	RTC clear
1-2 (default)	Normal operations
2-3	Clear

Settings for JP7 to 18 (COM1, COM2, COM5, COM6 power output)

	Jumper short-circuited	Pin 1 function in the DB9 connector
COM1	JP7 (Default)	DCD signal
	JP8	+5 V of electrical power
	JP9	+12 V of electrical power
COM2	JP10 (Default)	DCD signal
	JP11	+5 V of electrical power
	JP12	+12 V of electrical power
COM5	JP13 (Default)	DCD signal
	JP14	+5 V of electrical power
	JP15	+12 V of electrical power
COM6	JP16 (Default)	DCD signal
	JP17	+5 V of electrical power
	JP18	+12 V of electrical power

JP31 settings (TM reset polarity settings)

JP31	Dedicated TM reset
1-2 (default)	Active LOW
2-3	Active HIGH

This indicates the polarity of the signal when RTS or DTR is reset.
Set JP3 on the POS board when RTS or DTR is reset.

JP32 settings (TM/customer display flow control)

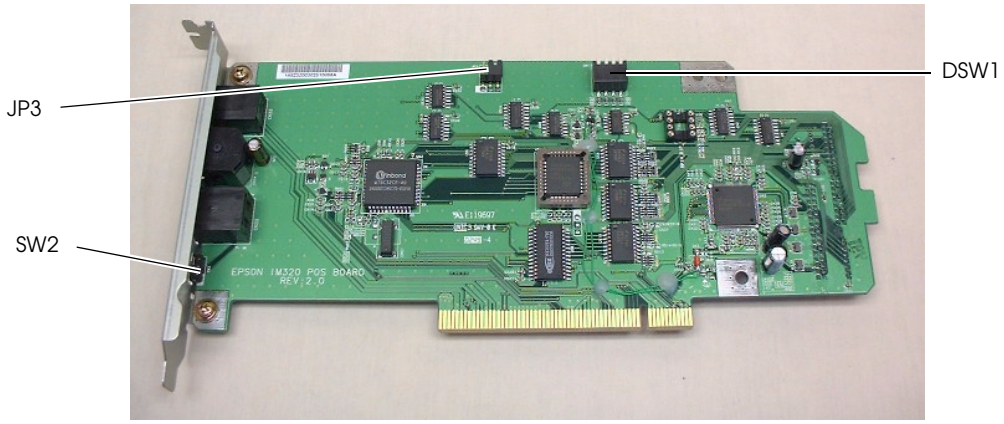
JP32	Dedicated TM flow control	Customer display flow control	Dedicated TM reset
1-2	RTS/CTS	DSR	DTR
2-3 (default)	DTR/DSR	CTS	RTS

Set JP3 on the POS board when RTS or DTR is reset.

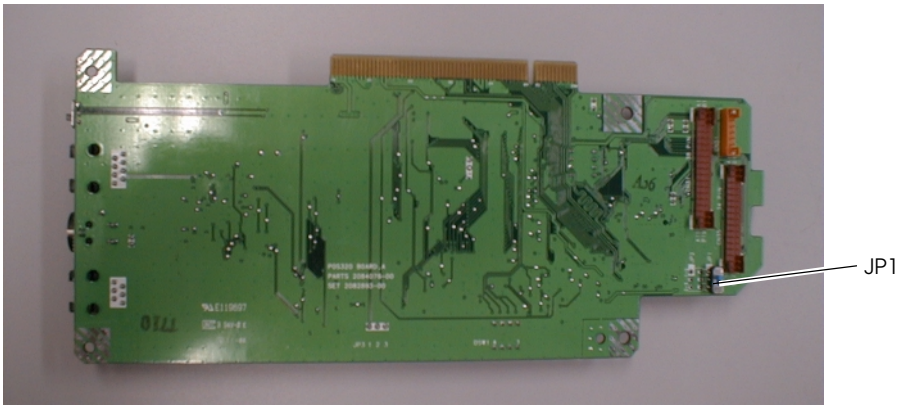
POS 320 Board Jumpers

The POS circuit board unit has two jumpers, one switch, and one four-polarity DIP switch that can be set.

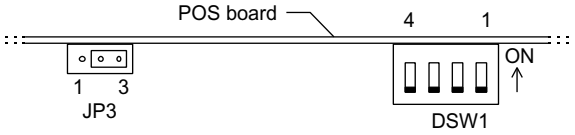
Parts Side (faces down when installing into the IR-320)



Back Side



Functions of JP3 and DSW1



JP3: Use this jumper to make a TM printer reset using RTS or DTR effective.

DSW1: Use this DIP switch to select the default value of the country mode of the MSR. And also use the switch when the keyboard cannot be used due to a setting error.

The functions of the three jumpers and the DIP switch are shown below.

JP3 settings (TM reset enable/disable setting for RTS and DTR)

JP3	**Dedicated TM reset**
1-2	Reset enabled for RTS and DTR
2-3 (default)	Reset disabled for RTS and DTR (reset only with RSTDRV)

DSW1 settings (DIP switch settings for keyboard controller)

SW			**Description**
4 (default: OFF)			Start-up mode (OFF: normal mode; ON: system boot)
SW1	SW2	SW3	Country
OFF	OFF	OFF	US (Default)
ON	OFF	OFF	Japan
OFF	ON	OFF	France
ON	ON	OFF	German
OFF	OFF	ON	Spain

Up = Off; Down = On

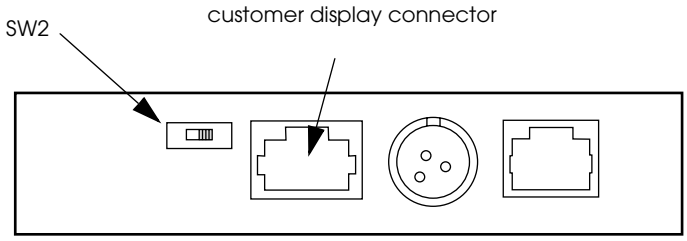
Start-up mode

By switching to the enforced boot mode, it is possible to start up the system using the default settings. This mode is designed for instances when start-up is impossible because of overwriting of firmware and system variables. The enforced boot can be performed only from an external keyboard. The MSR, 28-key keypad, and similar devices cannot be used.

Country setting

The country setting amends the default settings (such as MSR readers, K/B settings, and 28-key and 84-key default settings) when the settings are initialized and during an enforced boot start-up.

Functions of SW2



If you want to loop back the DTR and the DSR of the customer display port, set this switch to the [1] side. This function might be needed when a system using a previous version of OPOS controls a TM printer, without attaching a customer display.

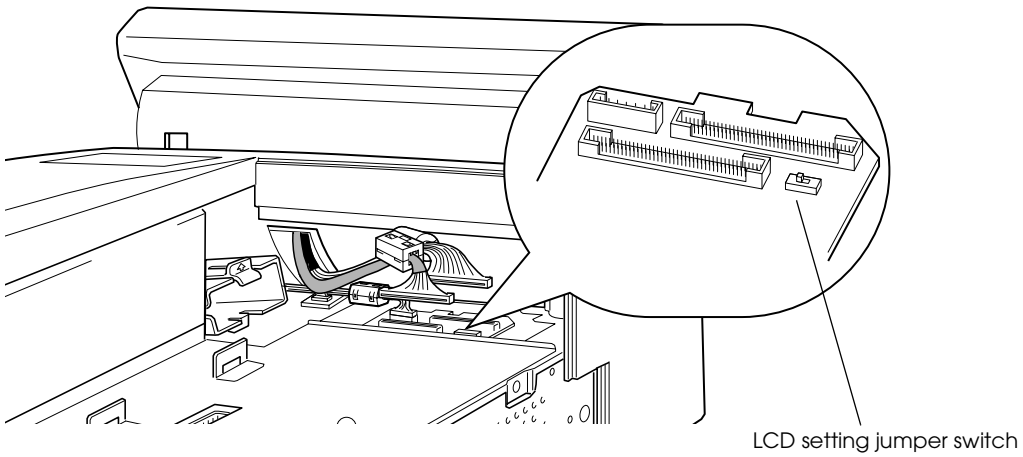
Normally, set this switch to the [0] side.

Functions of SW2

Customer display loop-back jumper	Dedicated TM reset
(1) side	Loop back DTR and DSR.
(0) side (default)	Normally used.

LCD setting jumper switch

The LCD setting jumper switch is located on the POS 320 board.



LCD jumper switch settings

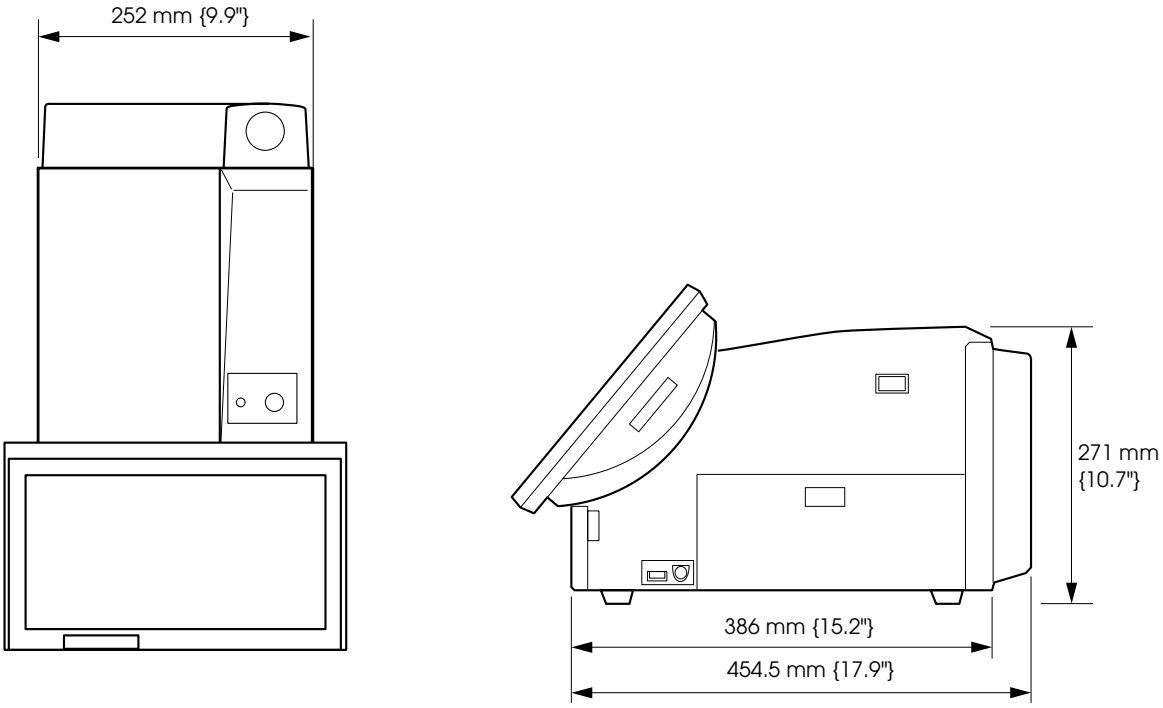
LCD setting jumper	LCD units
1-2	DM-LR104T-252 / LR121SL / LR121SV
2-3	DM-LDM-LR104T-052

IR-320 Usage

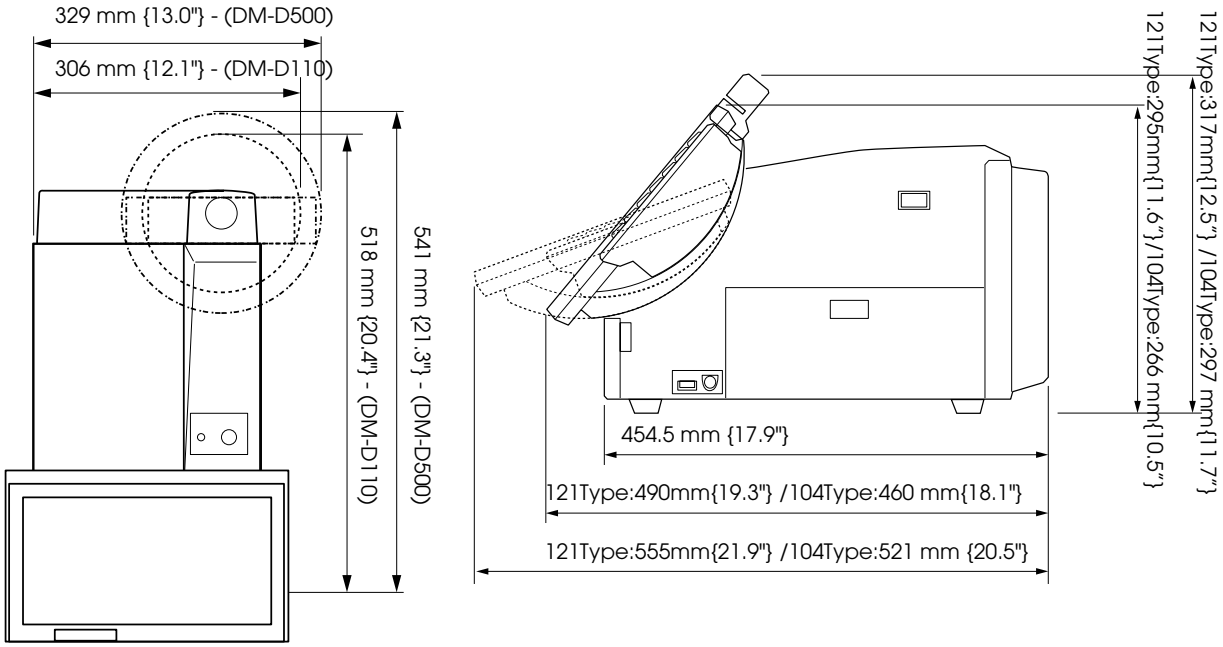
See the IR-320 User's Manual.

Dimensions

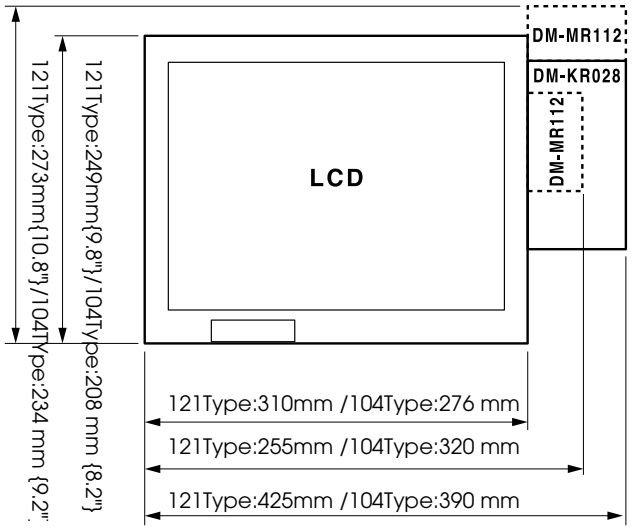
Main Body



Peripheral Dimensions of the LCD

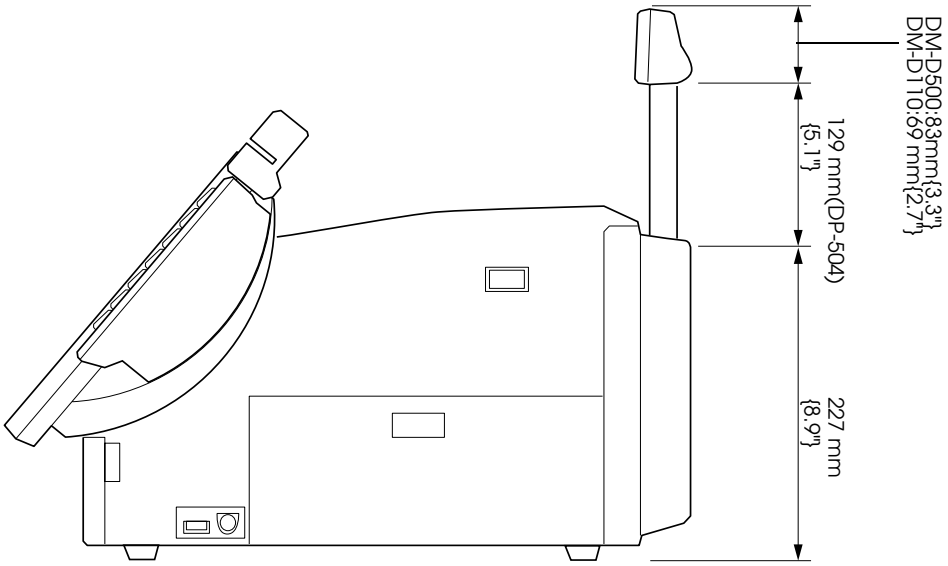


The 121 type is the case size of the DM-LR121Series, and the 104 type is the case size of the DM-LR104T.



The 121 type is the case size of the DM-LR121Series, and the 104 type is the case size of the DM-LR104T.

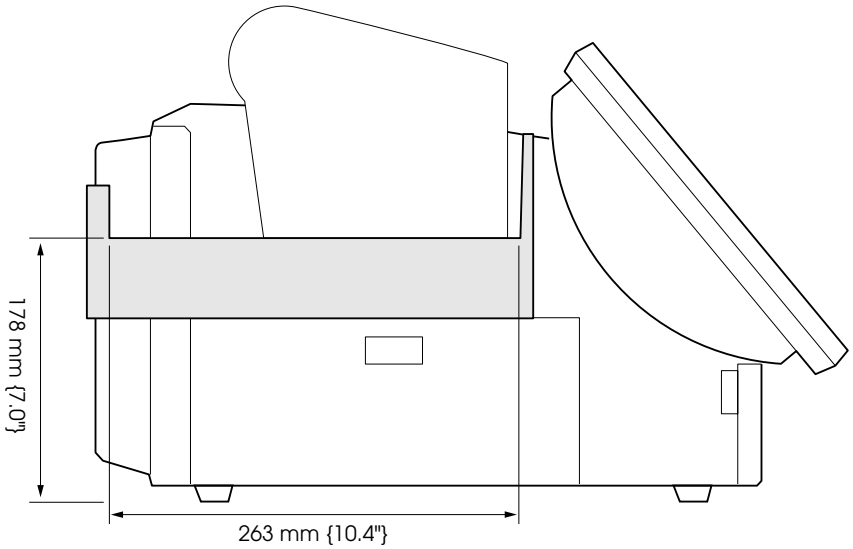
Peripheral Dimensions of the Customer Display



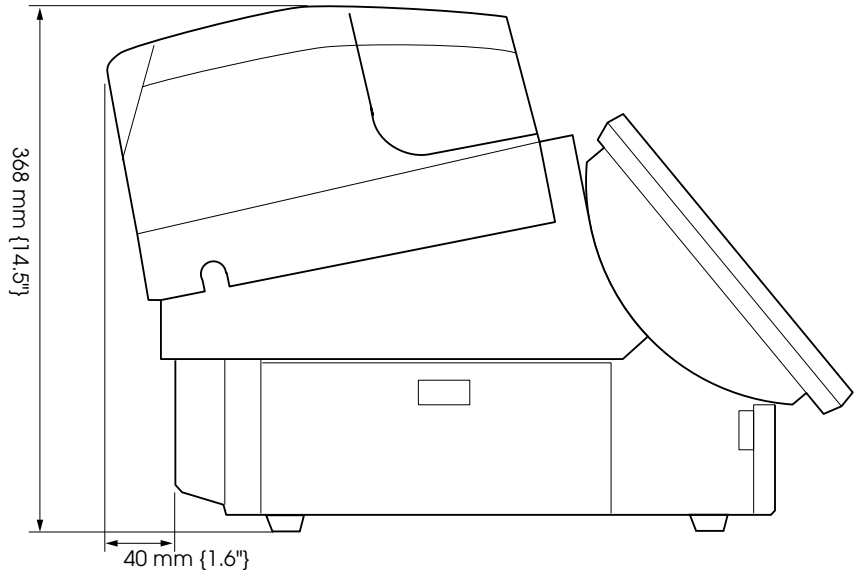
The dimensions in ( ) indicate the dimensions of the DP-504 with the extension prop.

Peripheral Dimensions of the Printer Tray

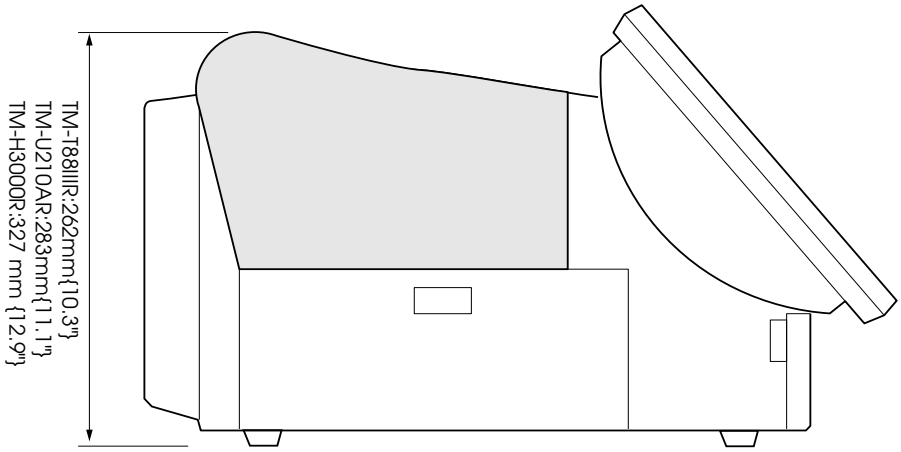
Dimensions when the OI-R101-001 is mounted.



Dimensions when the dedicated printer TM-H6000 is attached to the OI-R01-022.



Dimensions When the Printer Unit is Mounted



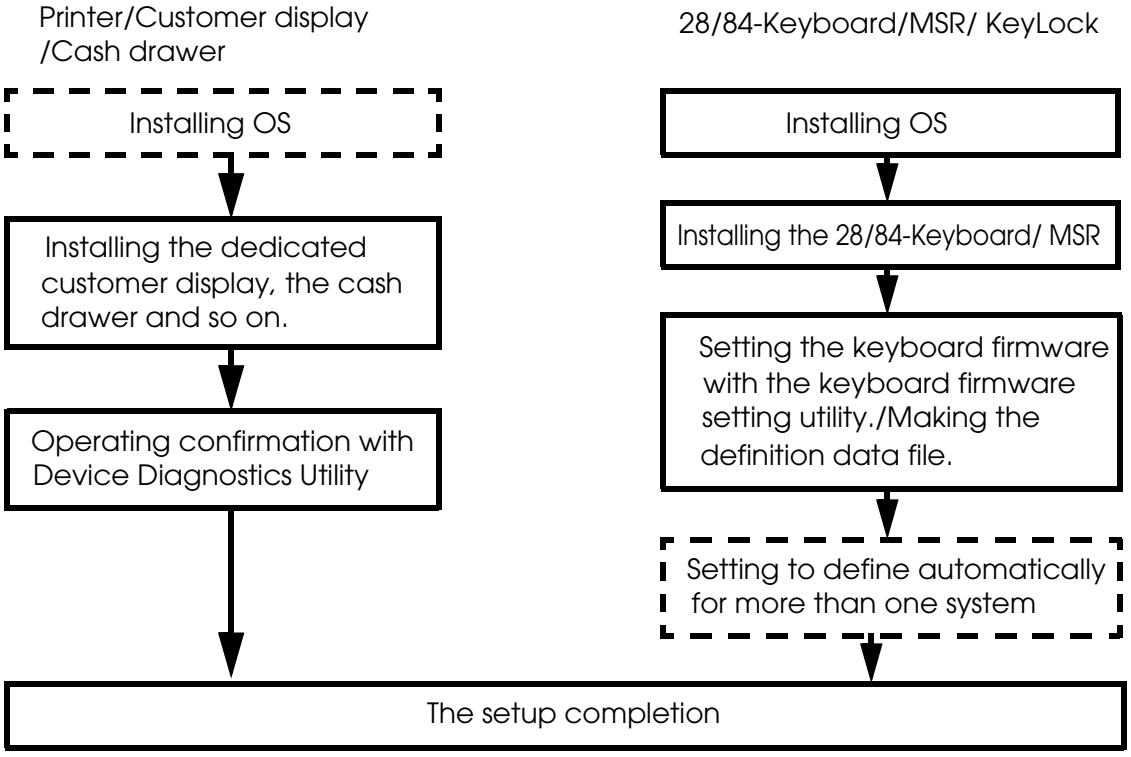
Chapter 2
Setup

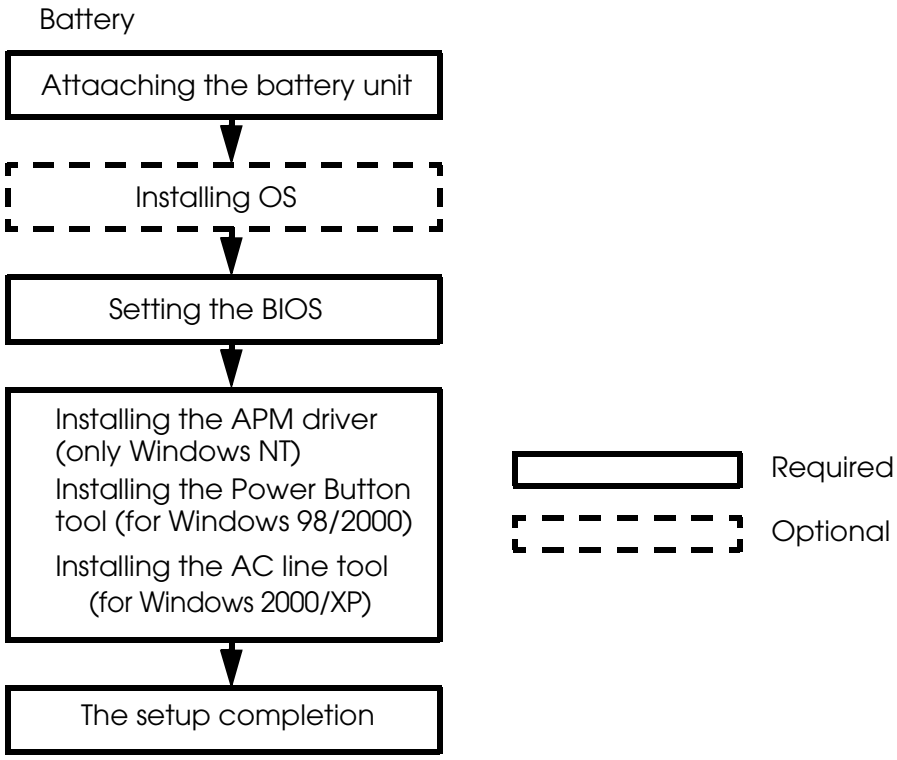
This chapter explains how to set up options and peripheral units of the IR-320.

Overview of the setup

The peripherals of the IR-320 include the ones that are set by a driver or a utility at the time of setup and must confirm in the operation. Peripherals may not operate correctly if the installation order of OS and driver is not correct.

The basic flow of the setup is described below.


Printer/Customer display
/Cash drawer
Installing OS
Installing the dedicated customer display, the cash drawer and so on.
Operating confirmation with Device Diagnostics Utility
28/84-Keyboard/MSR/ KeyLock
Installing OS
Installing the 28/84-Keyboard/ MSR
Setting the keyboard firmware with the keyboard firmware setting utility./Making the definition data file.
Setting to define automatically for more than one system
The setup completion



Refer to each item about the other peripheral devices and options.

Precautions for Setting Up

In addition to the precautions below, warning instructions and cautions to note are given at each work stage.

⚠ *CAUTION:*

- *Turn off the power for all equipment, including the IR-320 and all peripherals, before setup. Turn off the main (side) power switch for the IR-320. Unplug the power cables for the IR-320 and its peripheral units from the outlet. If the power is not turned off, the IR-320 or peripheral units may be damaged during setup.*
- *When the battery unit is installed and the power is on, do not turn off the main (side) power switch or unplug the power cable until you put the IR-320 in the soft off mode with the soft (front) power switch. Then you can turn off the main power switch and unplug the power cable. If the main power switch is turned off or the power cable is unplugged when the unit is in full on mode, power starts flowing from the battery unit. If power starts flowing from the battery unit, turn ON the main power switch, which stops the power supply from the battery unit.*

- *Static electricity can damage the components of the IR-320. Before you touch any components, touch a grounded metal surface to discharge the static electricity in your body. It is also recommended that you wear a grounded wristband and work on an antistatic surface.*
- *Do not touch the connectors. Dirt may cause a malfunction.*
- *Do not apply excessive force to connectors, cables, or screws during connection. Excessive force may damage the connectors or the screw threads.*
- *Do not allow cables to be pinched. The cables may be damaged or disconnected.*

Operations Before Setting Up the IR-320

Before setting up the IR-320, complete the following operations:

1. If Windows is running, exit it. The resulting power off condition is called "soft off." Proceed to step 4.
2. Press the soft (front) power switch once and let go. The resulting power off condition is also called "soft off." Proceed to step 4. If the power does not go off, proceed to step 4.
3. Press the soft power switch again, and hold it down for 4 seconds or more. The power supply to the IR-320 will go off.
4. Turn off the main (side) power switch. The resulting power off condition is called "mechanical off."
5. When the battery unit is attached, remove it.
6. Unplug the power cable. Confirm that power supplies to all peripheral units are off and unplug the connection cables from them.

Operation Testing Products

The operation confirmation products are the ones that are built-in, included, or connected to EPSON POS products, and their operation has been confirmed by EPSON. EPSON can offer reference information for the selection of peripheral devices to the customer who constructs a system using an EPSON POS product. Please ask EPSON or the selling agent what kind of device can be used.

This operation confirmation evaluates the operation of the products in a usual environment, but does not guarantee the operation. Therefore, the customer is basically responsible for the procurement and the evaluation of the equipment.

How to Install Options/Peripheral Units

See the following pages for instructions on setting up each option or peripheral.

Option/Peripheral	Page
Installing a DIMM (Memory)	2-5
Installing a 2.5" HDD Unit (OI-HDD) *1	2-7
Installing a 3.5" HDD Unit (OI-HDD) *1	2-11
Installing a CD-ROM Drive , CD-R/RW Drive (OI-R06)*2	2-17
Installing a Front CompactFlash Card Adapter (OI-R07)*2	2-21
Installing an LCD Unit	2-24
Installing an 84-Key Keyboard Unit (DM-KR084) (DM-KR084)	2-35
Installing a Battery Unit (OI-R03)	2-39
Installing a 28-Key Keyboard Unit (DM-K028)	2-43
Installing the MSR Unit (DM-MR123)	2-48
Installing a Printer Tray	2-52
Installing a Printer	2-54
Installing a PCI Board	2-60
Installing a Customer Display	2-62
Installing a Mouse/Keyboard	2-67
Installing a Cash Drawer	2-68
Attaching a Power Cable	2-69

*1: The 2.5" HDD unit (OI-HDD) and the 3.5" HDD unit (OI-HDD) cannot be installed together.

*2: The CD-ROM drive (OI-R06) and the front CompactFlash adapter (OI-R07) cannot be installed together.

Note:
Don't use a serial mouse.

Installing a DIMM (Memory)

DIMMs (memory) are installed in the DIMM sockets on the main board.

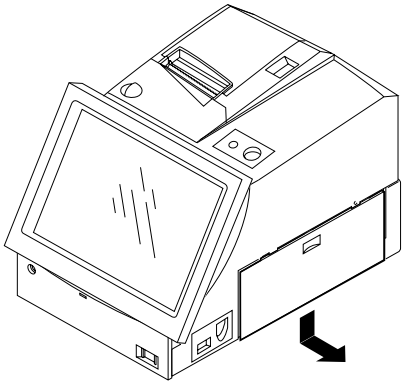
One 128MB DIMM is standard on the IR-320. Two DIMM sockets (168-pin type), which can increase the memory to 512MB, are available. Remove the DIMM originally installed, and install the two DIMMs instead.

⚠ *CAUTION:*

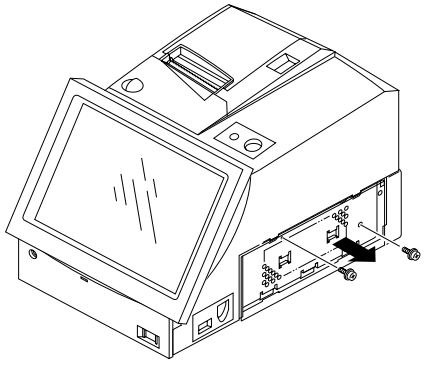
- *Static electricity can damage the components of the IR-320. Before you touch any components, touch a grounded metal surface to discharge the static electricity in your body. It is also recommended that you wear a grounded wristband and work on an antistatic surface.*
- *Do not touch the DIMM connectors. Dirt may cause a malfunction.*
- *If it is difficult to insert the DIMM, do not apply excessive force to the DIMM. If excessive force is used, the connection parts may be damaged. Remove the DIMM, check the connection part to confirm that no problem exists, and then insert it again.*

The DIMM is installed by using the following procedure:

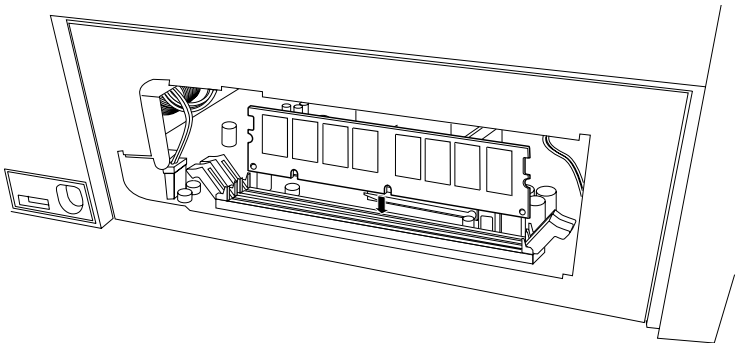
1. Slide the right side cover down until it comes off.



2. Remove the two screws from the side panel, and remove the side panel by pulling it out while lifting it.



3. Match the two notches in the DIMM to the projections on the socket, and push the DIMM until it clicks and stands upright.



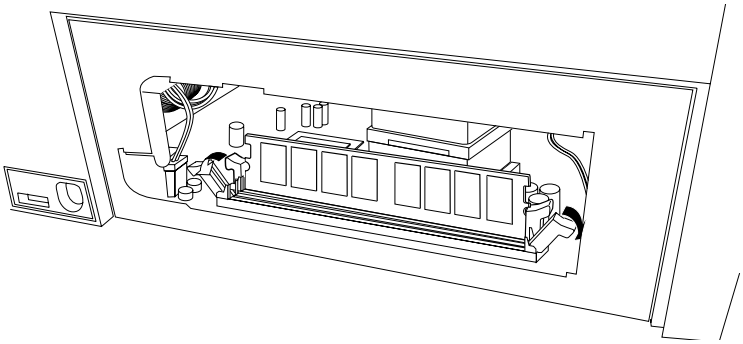
Note:
When two DIMMs are installed, use the farthest socket first.

4. Reattach the side panel with two screws.

5. Reattach the side cover.

Removing the DIMM

To remove the DIMM, unlock the lock pins located on both sides of the DIMM socket, and pull the DIMM straight up.



Installing a 2.5" HDD Unit (OI-HDD)

The IR-320 has one or two 2.5" HDDs or one 3.5" HDD, according to its specifications. Up to two 2.5" HDDs can be installed.

For information on installing the 3.5" HDD unit (OI-HDD), see the following section, “Installing a 3.5" HDD Unit (OI-HDD).”

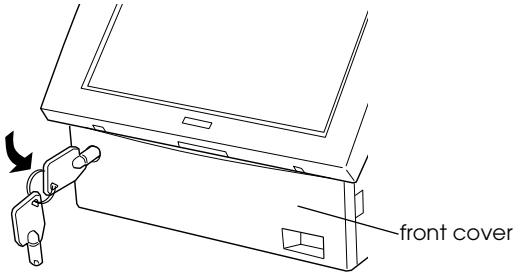
To install a 2.5" HDD, remove the HDD unit currently installed in the IR-320, install the optional HDD, and reinstall original the HDD unit in the IR-320. Install the optional HDD using the following procedure.

⚠ *CAUTION:*

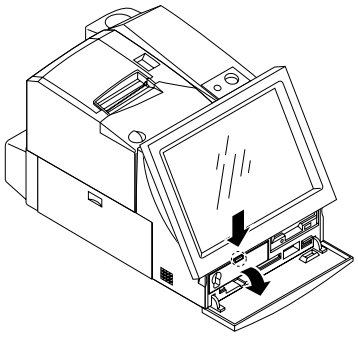
Do not subject the HDD unit to shock or vibration. Because the HDD unit is a precision instrument, do not subject it to even the slightest shock or vibration.

(1) Removing the HDD unit

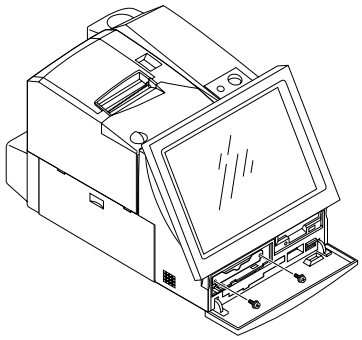
1. Open the front cover of the IR-320. If the front cover is locked, unlock it with the front key. To unlock the front cover, insert the key into the front lock, and push in slightly while you turn it.



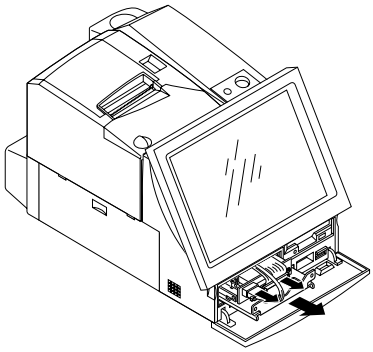
2. Open the HDD cover by lightly pressing down on the upper pin lock.



3. Remove the two screws from the HDD unit.

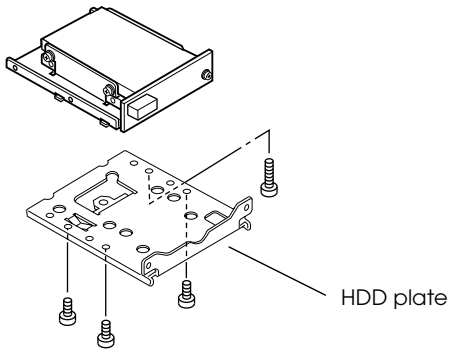


4. Pull the HDD unit toward the front slightly while watching the cables, and remove the two cables for the HDD unit from the their connectors.



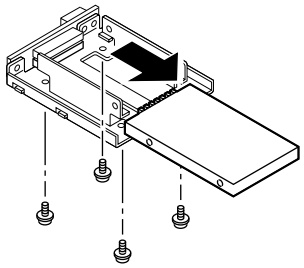
5. Remove the HDD unit.

6. Remove the four screws from the HDD unit, and remove the HDD plate.

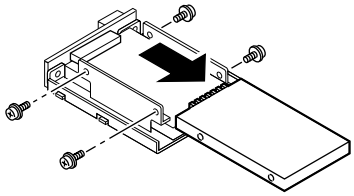


7. When removing the HDD drive, remove the four screws for the HDD drive as shown in the figure below, and remove it.

removing the HDD in the lower drive bay



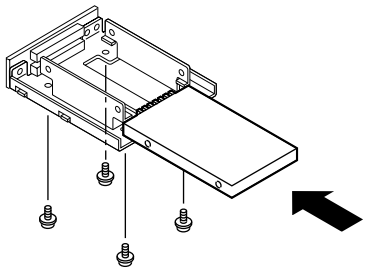
removing the HDD in the upper drive bay



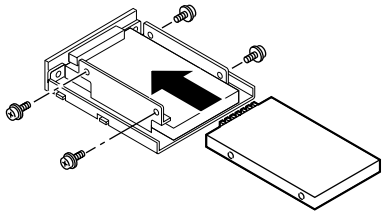
(2) Installing the HDD

1. Install the HDD in the HDD unit, and attach it with four screws.

installing the HDD in the lower drive bay



installing the HDD in the upper drive bay

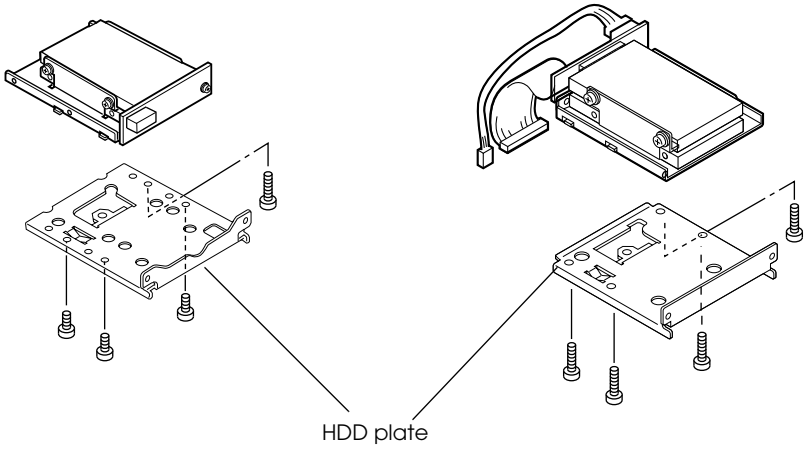


2. When you use two HDDs, set the jumpers to make one a "master" and the other a "slave." To make an HDD a master drive, remove the jumper. To make an HDD a slave, set the jumper.

Note:
When you use two drives, one must be a master and one must be a slave. The IR-320 will not boot from the slave drive.

An HDD may be set to either a master or slave, whether it is installed in the upper drive bay or the lower drive bay.

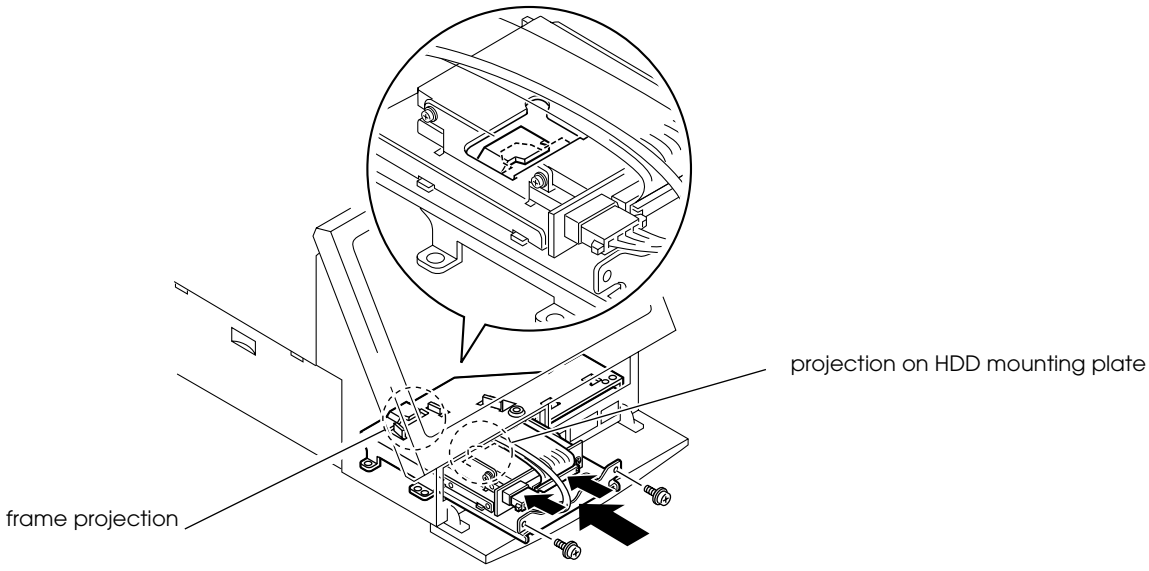
3. Attach the HDD plate with four screws.



(3) Installing the HDD unit

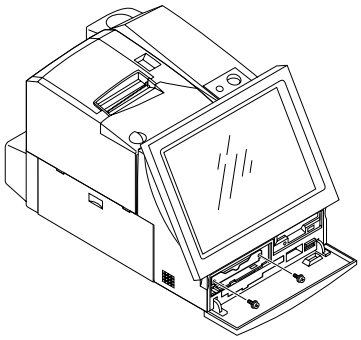
Install the HDD unit using the steps below. If you are installing the HDD where the cables will be hidden, as shown in step 3 of "Removing the HDD unit," use the steps for "Installing the HDD unit where the cables will be hidden" later in this section.

1. Push the HDD unit into the IR-320 from the front. Be careful not to subject the HDD to shock or vibration, and be sure the cables are not pinched. Confirm that the projection on the mounting plate under the HDD is firmly engaged with the frame projection on the IR-320.



2. Connect the two cables for the HDD unit to their connectors.

3. Lock the HDD unit with two screws.



4. Reattach the HDD cover.

5. Close the front cover.

6. Turn on the IR-320, start up the BIOS setup, and confirm that the HDD is normally identified. For information on the BIOS setup, see Chapter 5, "BIOS Functions."

Installing a 3.5" HDD Unit (OI-HDD)

The IR-320 has one or two 2.5" HDDs or one 3.5" HDD, depending on its specifications. Up to two 2.5" HDDs can be installed.

For information on installing the 2.5" HDD units (OI-HDD), see the previous section, "Installing a 2.5" HDD Unit (OI-HDD)."

The IR-320 does not start up though the battery unit (OI-R03) as the option is connected to the IR-320.

To install the 3.5" HDD, remove the currently installed HDD unit from the IR-320, install the optional HDD in the HDD unit, and reinstall the HDD drive bay in the IR-320.

Install the optional HDD using the following procedure.

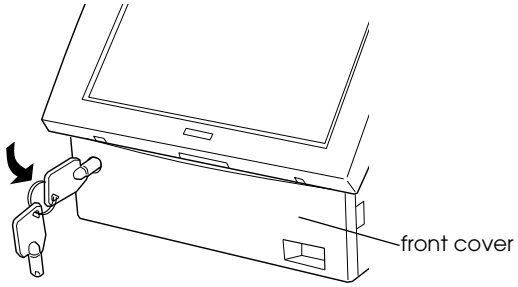
⚠ *CAUTION:*

Because the HDD unit is a precision instrument, do not subject it to even the slightest shock or vibration.

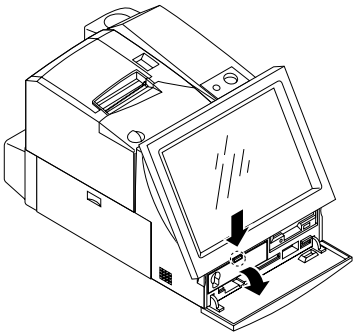
Confidential

(1) Removing the HDD unit

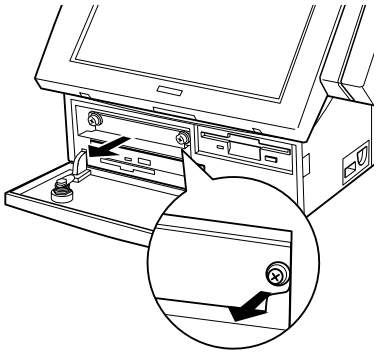
1. Open the front cover of the IR-320. If the front cover is locked, unlock it with the key. (You may need to press in slightly as you turn the key.)



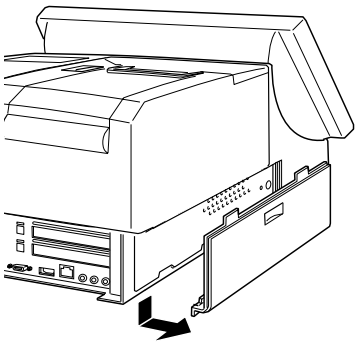
2. Open the HDD cover by lightly pressing down on the upper pin lock.



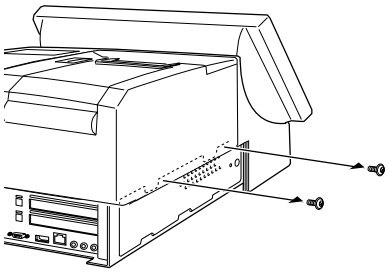
3. Unscrew two screws and remove the HDD faceplate.



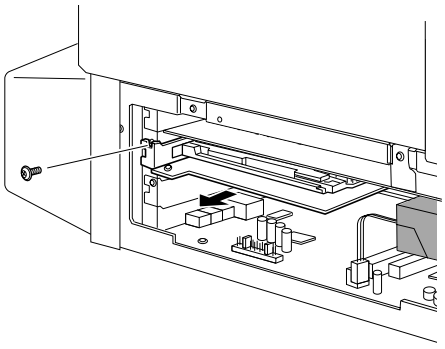
4. Remove the left side cover by sliding it downward.



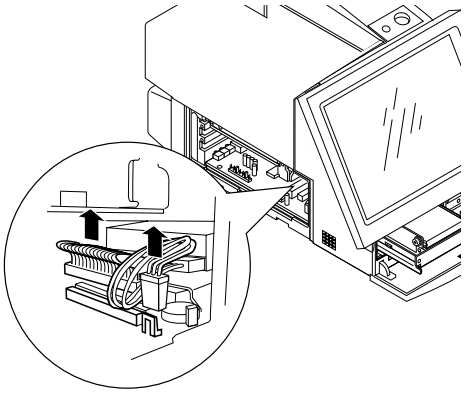
5. Remove the two screws attaching the side panel.



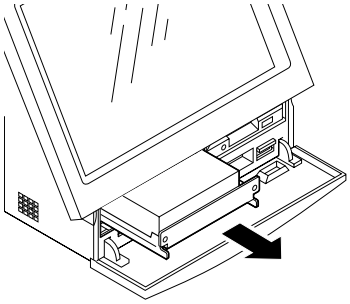
6. If a PCI card is installed, remove it. Remove the screw locking the PCI card and pull the PCI card out.



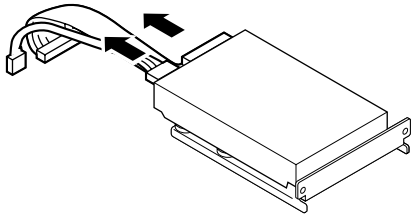
7. Remove the two cables for the HDD unit from their connectors.



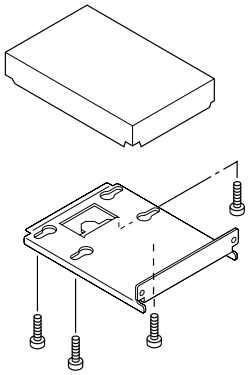
8. Remove the HDD unit from the front while watching the cables.



9. Remove the two cables from the HDD unit.



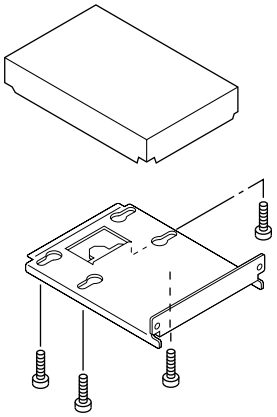
10. Remove the four screws from the HDD unit, and remove the HDD mounting plate.



(2) Installing the HDD

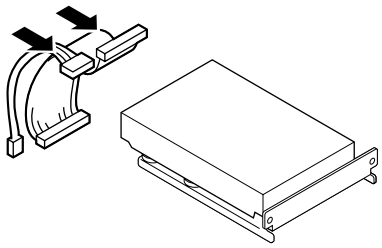
Install the HDD using the following procedure:

1. Attach the HDD to the HDD mounting plate with four screws.



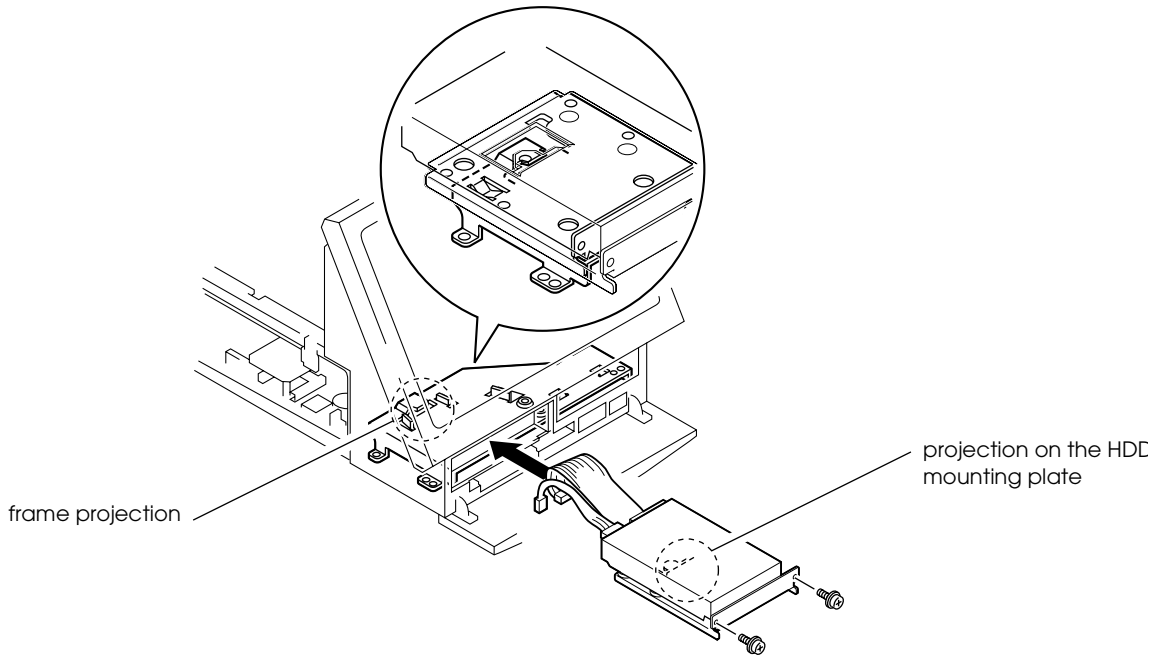
2. Set the HDD jumper as shown in the below figure.
   The jumper setting depends on the make and model of the HDD. Set the jumper for your HDD.

3. Connect the two cables to their connectors.

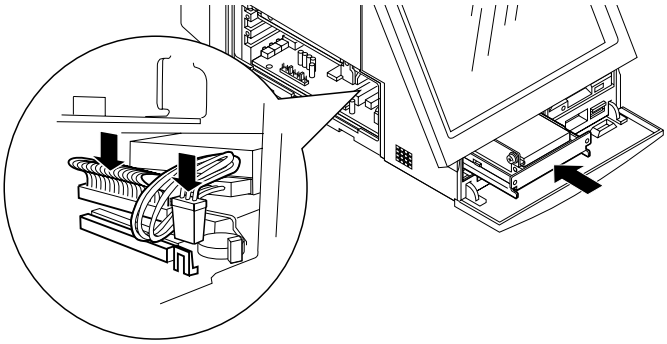


(3) Installing the HDD unit

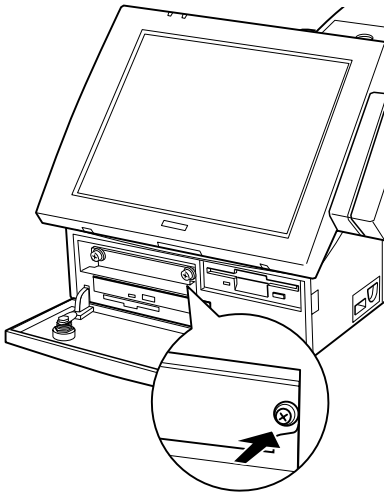
1. Slide the HDD unit into the IR-320 from the front, being careful not to subject it to shock or vibration, and be sure the cables are not pinched. Confirm that the projection on the mounting plate under the HDD is firmly engaged with the frame projection on the IR-320.



2. Connect the two cables for the HDD unit to their connectors.



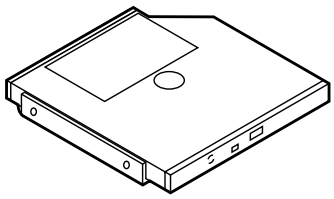
3. Lock the HDD unit with two screws.



4. Reattach the HDD cover.
5. Insert the removed PCI card.
6. Reattach the side panel with two screws.
7. Reattach the side cover.
8. Close the front cover.
9. Turn on the IR-320, start up the BIOS setup, and confirm that the HDD is identified normally. For information on the BIOS setup, see Chapter 5, "BIOS Functions."

Installing a CD-ROM Drive , CD-R/RW Drive (OI-R06)

The optional 24× CD-ROM drive (OI-R06) or CD-R/RW drive (OI-R06-202) is installed using the following procedure:



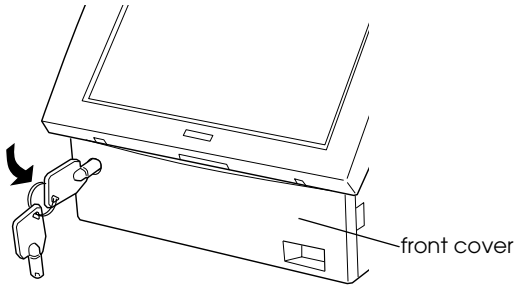
Note:
The CD-R/RW drive can write, but you must prepare the application to write.

⚠ CAUTION:

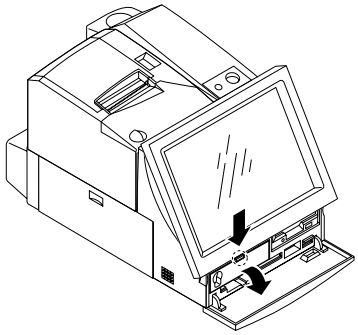
Because the CD-ROM, CD-R/RW drive is a precision instrument, do not subject it to even the slightest shock or vibration; otherwise, the CD-ROM, CD-R/RW drive may stop operating.

Install the CD-ROM, CD-R/RW drive by following the steps below.

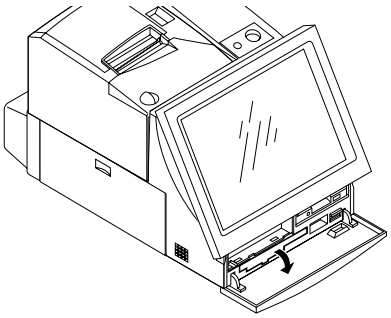
1. Open the front cover of the IR-320. If the front cover is locked, unlock it with the key. (You may need to press in slightly as you turn the key.)



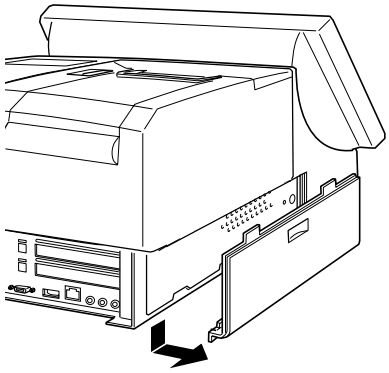
2. Remove the HDD cover.



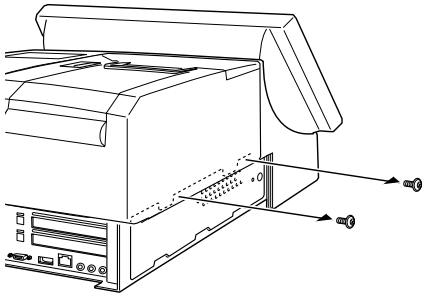
3. Remove the CD-ROM cover. (Keep this cover because it is not used while the CD-ROM, CD-R/RW drive is installed.)



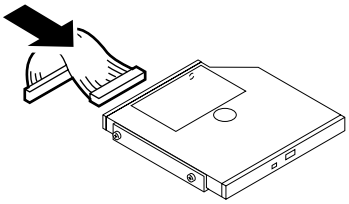
4. Remove the left side cover by sliding it downward.



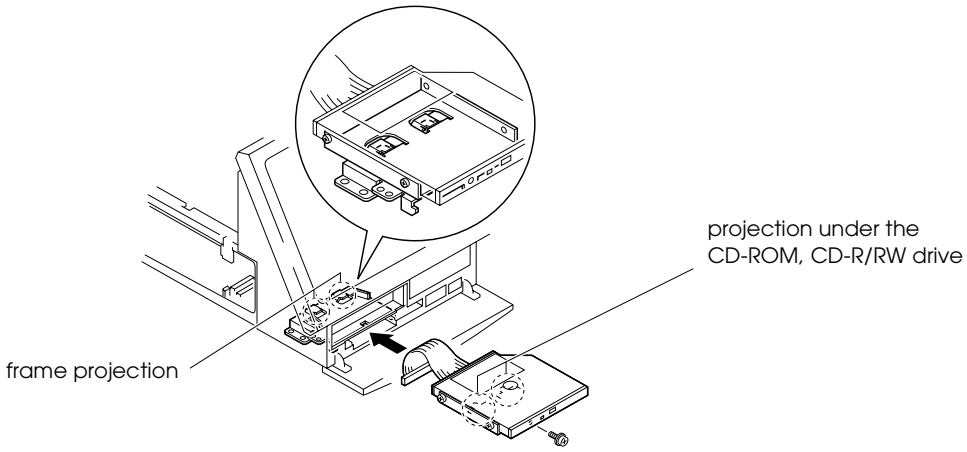
5. Remove two screws attaching the side panel.



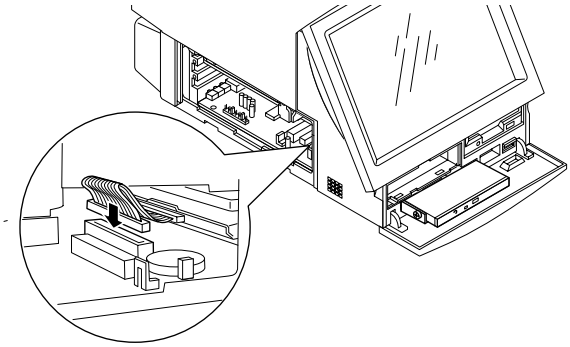
6. Attach the cable set to the CD-ROM, CD-R/RW drive.



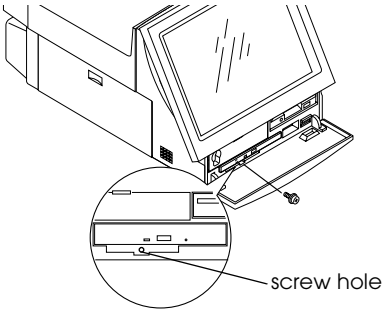
7. Push the CD-ROM, CD-R/RW drive into the IR-320 from the front, being careful not to subject it to shock or vibration, and be sure the cables are not pinched. Confirm that the projection under the CD-ROM, CD-R/RW drive is firmly engaged with the frame projection on the IR-320. If the cable for the HDD unit is in the way of the connection for the CD-ROM, CD-R/RW drive, remove the HDD unit cable, connect the cable for the CD-ROM, CD-R/RW drive, and re-connect the HDD unit cable.



8. Connect the cable for the CD-ROM, CD-R/RW drive to the connector.



9. Attach the CD-ROM, CD-R/RW drive with one screw.



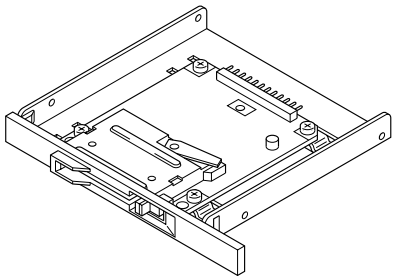
10. Reattach the HDD cover.

11. Reattach the side panel with two screws.
12. Reattach the side cover.
13. Close the front panel.

Installing a Front CompactFlash Card Adapter (OI-R07)

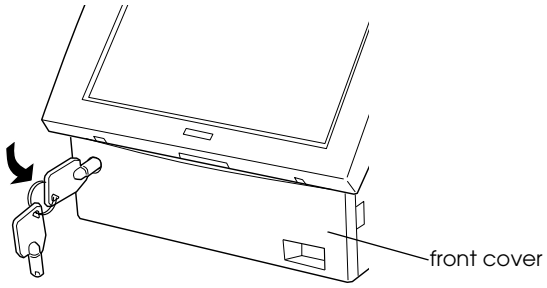
⚠ *CAUTION:*

The front CompactFlash card adapter is precise equipment; so handle it gently. When you remove and install the front CompactFlash card adapter. be careful not to subject it to small shock, vibration or bending, because this may damage it.

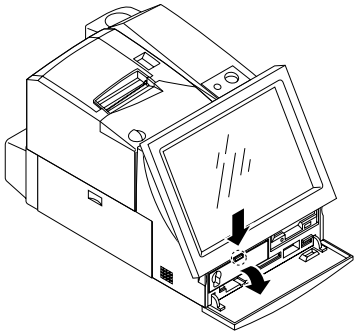


Card type	One Type I or Type II
Power supply	+3.3 V/50 mA (max.)
I/F mode	True IDE mode
Connection to the main body	Secondary IDE bus (master) connection

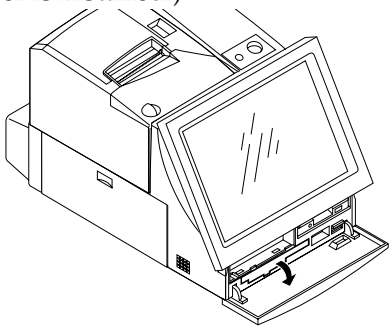
1. Open the front cover of the IR-320. If the front cover is locked, unlock it with the key. (You may need to press in slightly as you turn the key.)



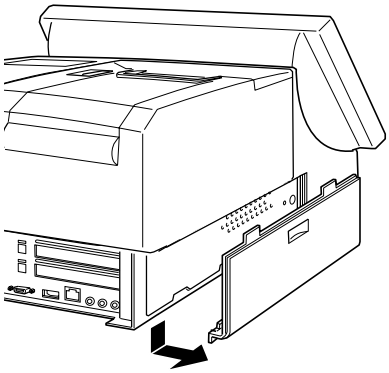
2. Remove the HDD cover.



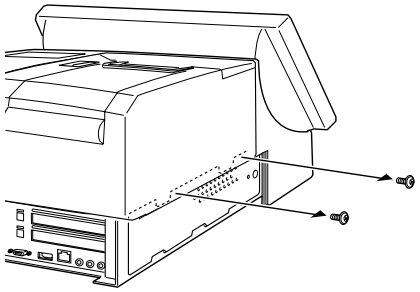
3. Remove the CD-ROM cover. (Keep this cover because it is not used while the front CompactFlash card adapter is installed.)



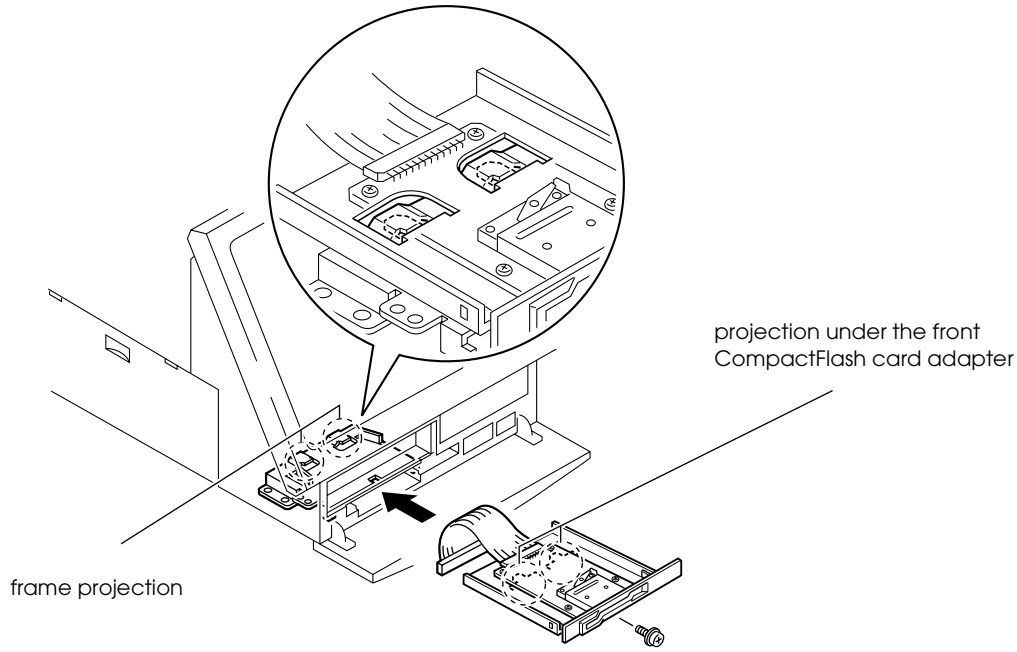
4. Remove the left side cover by sliding it downward.



5. Remove two screws attaching the side panel.

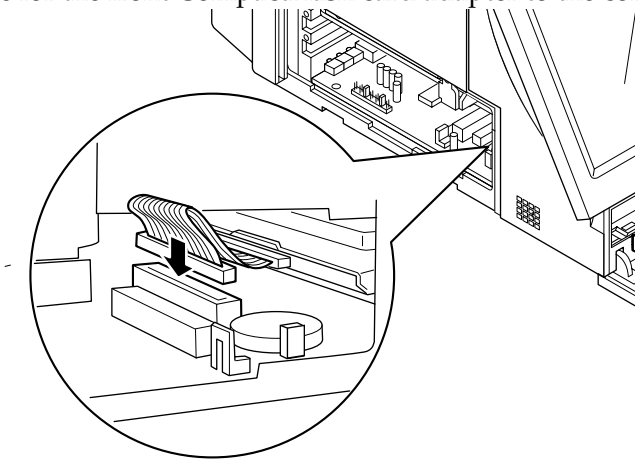


6. Push the front CompactFlash card adapter into the IR-320 from the front, being careful not to subject it to shock or vibration, and be sure the cables are not pinched. Confirm that the projection under the front CompactFlash card adapter is firmly engaged with the frame projection on the IR-320. If the cable for the HDD unit is in the way of the connection for the front CompactFlash card adapter, remove the HDD unit cable, connect the cable for the front CompactFlash card adapter, and re-connect the HDD unit cable.



7. Attach the front CompactFlash card adapter with one screw.

8. Connect the cable for the front CompactFlash card adapter to the connector.



9. Reattach the HDD cover.

10. Reattach the side panel with two screws.

11. Reattach the side cover.

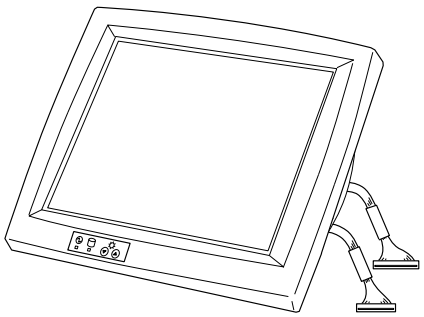
12. Close the front panel.

Installing an LCD Unit

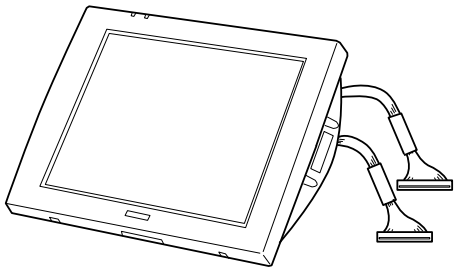
Three LCD units are available:

LCD unit	Type	Display size	Resolution
DM-LR104T	TFT	10.4" {26.42 cm}	SVGA 800x600
DM-LR121SL	TFT	12.1" {30.73 cm}	SVGA 800x600
DM-LR121SV	TFT	12.1" {30.73 cm}	SVGA 800x600

The 84-keyboard (DM-KR084) can be installed instead of an LCD unit.



DM-LR121Series



DM-LR104T

❑ Attach the ferrite core (an accessory of the IR-320) to the appointed cable.

❑ Select the touch panel driver from the type of the LCD unit, and install when the OS is installed.

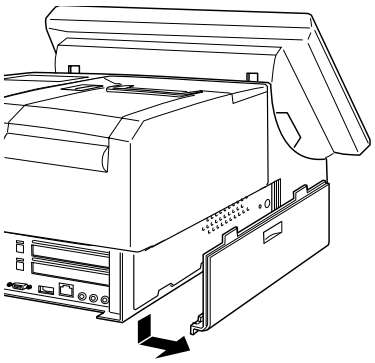
Note:
When you connect another type of the LCD unit, you need to install another touch panel driver. For details, ask your dealer.

Description of jumper switch for each LCD unit

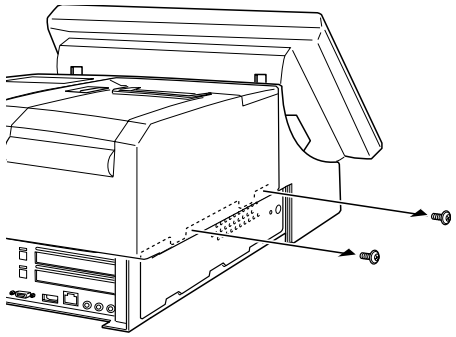
LCD unit	Jumper switch
DM-LR104T-052	2-3
DM-LR104T-252	1-2
DM-LR121SL	1-2
DM-LR121SV	1-2

DM-LR121Series

1 Remove the left side cover by sliding it downward.

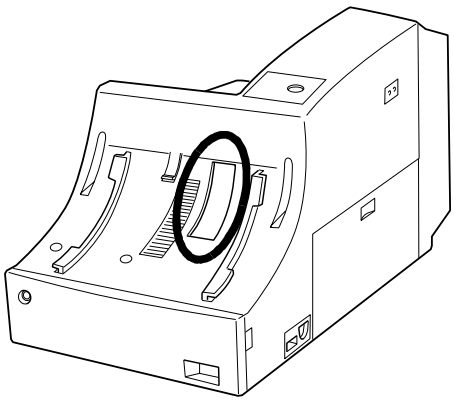


2 Remove the two screws from the printer unit or the printer tray.

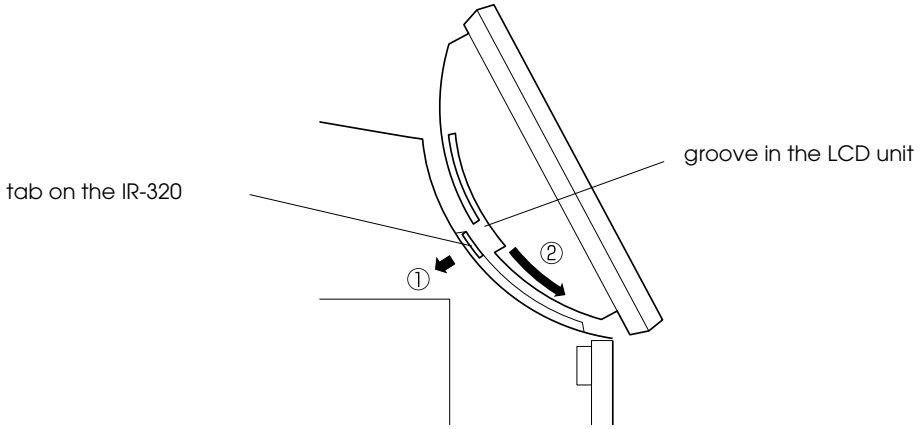


3 Remove the printer unit or the printer tray. When removing the printer unit, remove the printer cable from the connector.

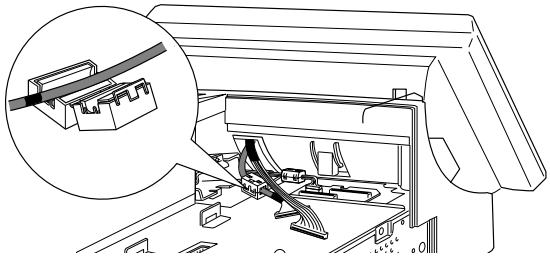
4 Thread the two cables for the LCD unit through the hole in the center of the IR-320.



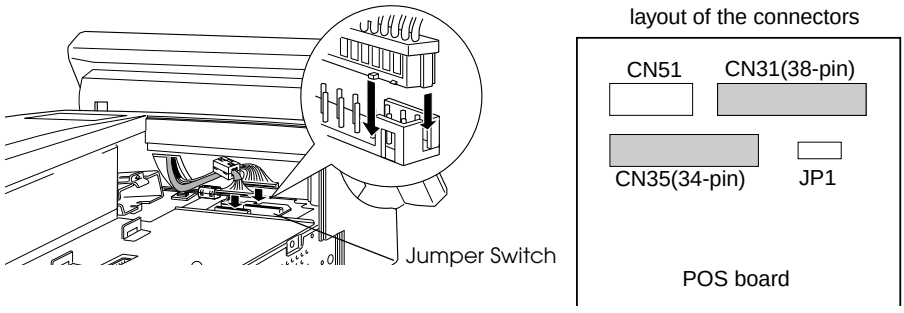
5 Engage the right and left tabs on the IR-320 with the right and left grooves in the back of the LCD unit. When both sides are engaged, slide the LCD unit down while pressing the lock lever on the left side of the LCD unit.



6 The LCD unit has a 34-pin connector cable and a 38-pin connector cable. Attach the ferrite core (an accessory of the IR-320) to the 34-pin connector cable.



7 Connect the cables for the LCD unit to their connectors.



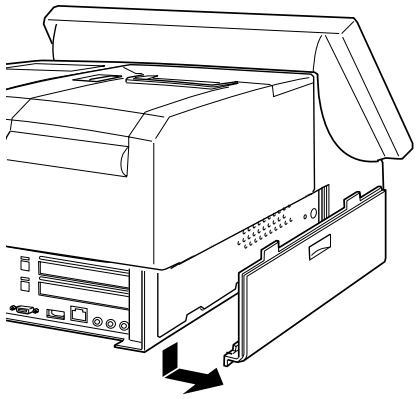
8 Check the Jumper Switch setting. For the DM-LR121SV/DM-LR121SL, set the JP1 to "1-2."

9 Install the printer unit or the printer tray, and lock it with two screws.

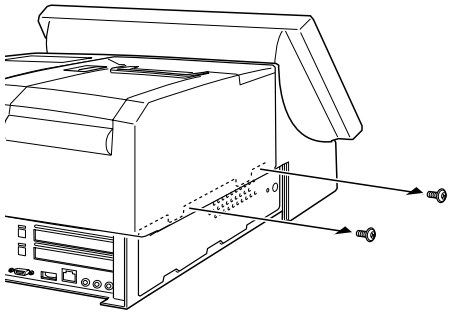
10 Reattach the side cover.

DM-LR104T

1. Remove the left side cover by sliding it downward.

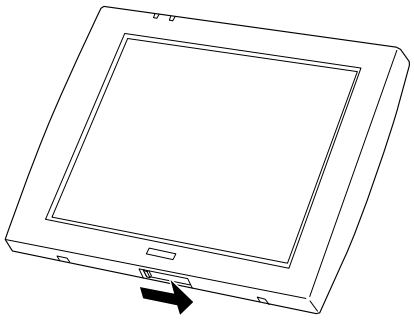


2. Remove the two screws from the printer unit or the printer tray.

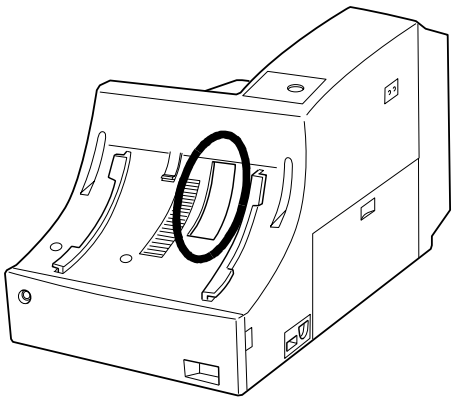


3. Remove the printer unit or the printer tray. When removing the printer unit, remove the printer cable from the connector.

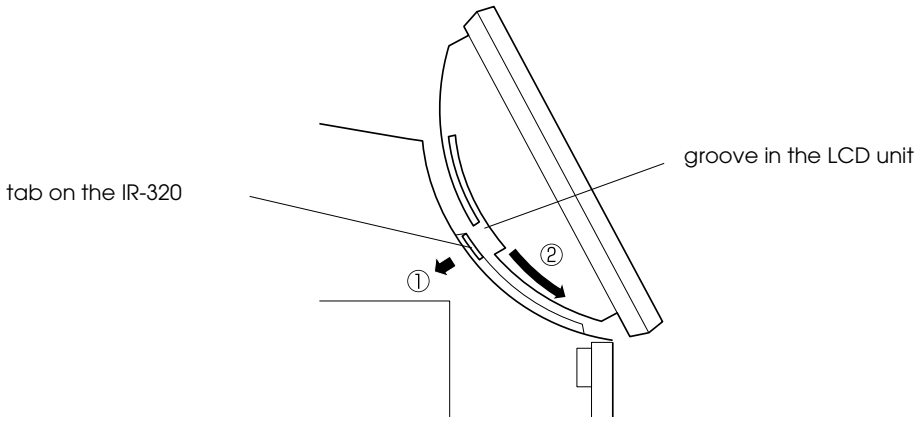
4. Set the lock knob under the LCD unit to the release position.



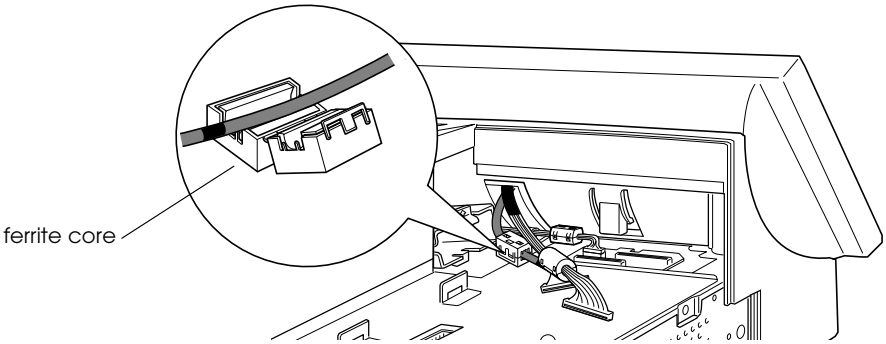
5. Thread the two cables for the LCD unit through the hole in the center of the IR-320.



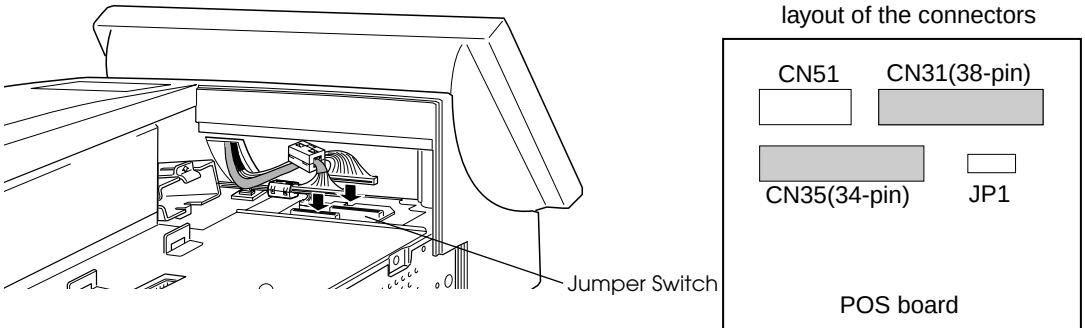
6. Engage the right and left tabs on the IR-320 with the right and left grooves in the back of the LCD unit. When both sides are engaged, slide the LCD unit down on the back.



7. The LCD unit has a 34-pin connector cable and a 38-pin connector cable. Attach the ferrite core (an accessory of the IR-320) to the 34-pin connector cable.



8. Connect the cables for the LCD unit to the connectors.



9. Check the Jumper Switch setting. For the DM-LR104T-252, set the JP1 to "1-2," and for the DM-LR104T-052, set the JP1 to "2-3."

Note:
If the jumper is incorrectly set, the LCD display is not correct.

10. Return the lock knob under the LCD unit to the lock position.

11. Install the printer unit or the printer tray, and lock it with two screws.

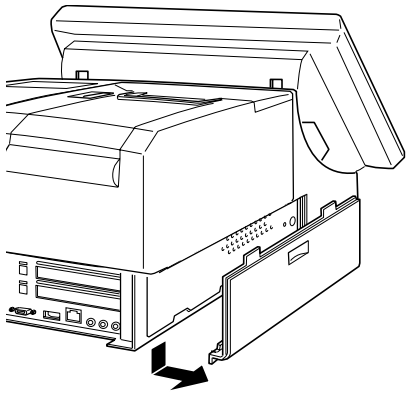
12. Reattach the side cover.

Removing the LCD Unit

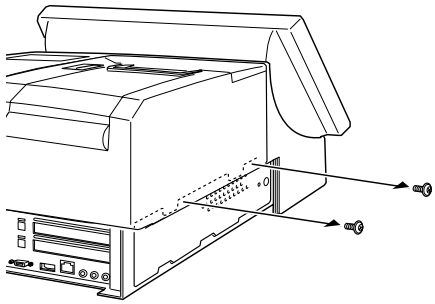
The removal procedure for the LCD depends on the type of LCD unit.

DM-LR121Series

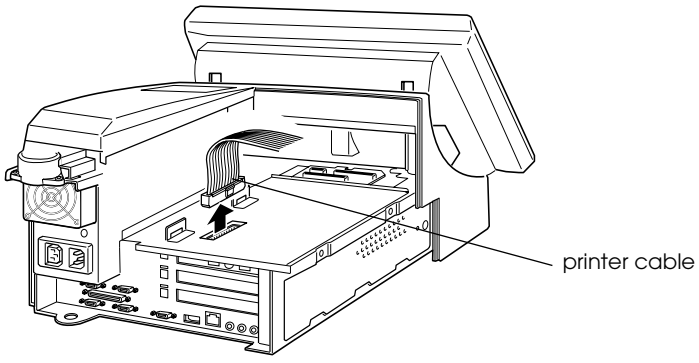
1. Remove the left side cover by sliding it downward.



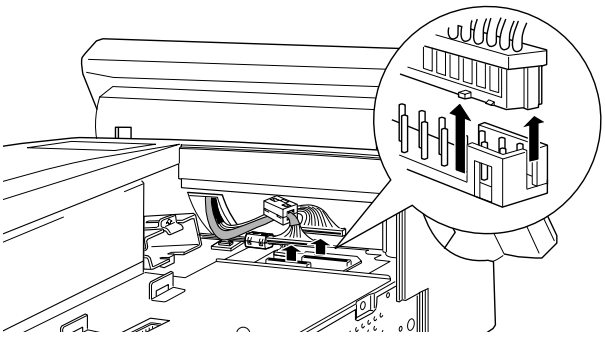
2. Remove the two screws from the printer unit or the printer tray.



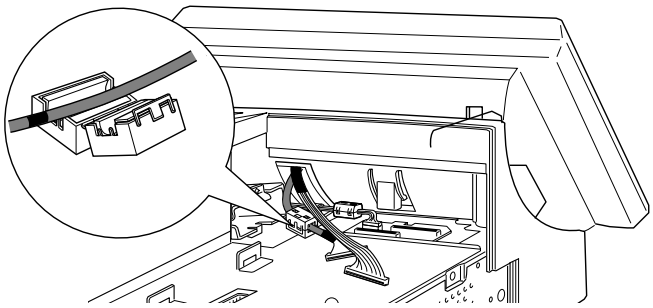
3. Remove the printer unit or the printer tray. When removing the printer unit, remove the printer cable from the connector.



4. Remove the two cables for the LCD unit from their connectors.



5. Remove the ferrite core. Keep the removed ferrite core for installing on another LCD unit.

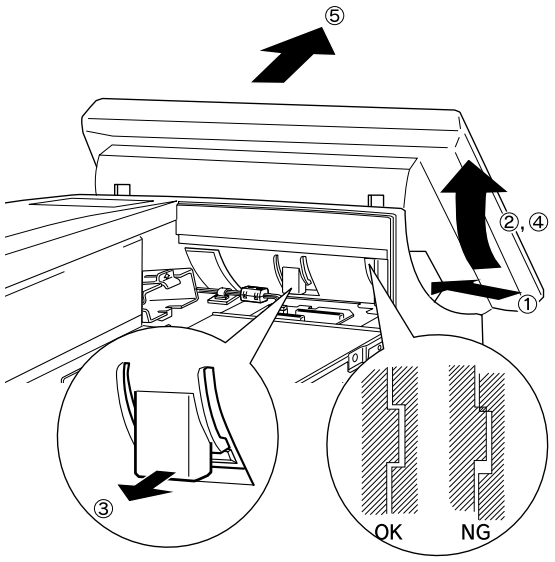


6. Slide the LCD unit until it hits the upper limit of the slide range while pressing the lock lever on the left side of the LCD unit.

   Slightly pull the part circled in the illustration below in the direction of the arrow, and slide the LCD unit upward further on the back.

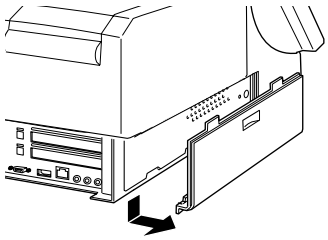
   Adjust the position of the LCD unit while watching the hole shown in the figure so that the tabs of the main body can be disengaged from the grooves in the LCD unit.

   Remove the LCD unit in the direction of arrow (5).

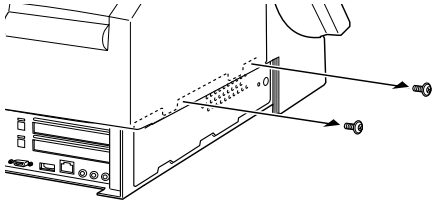


DM-LR104T

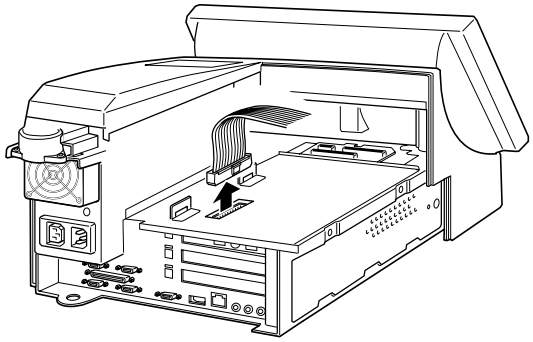
1. Remove the left side cover by sliding it downward.



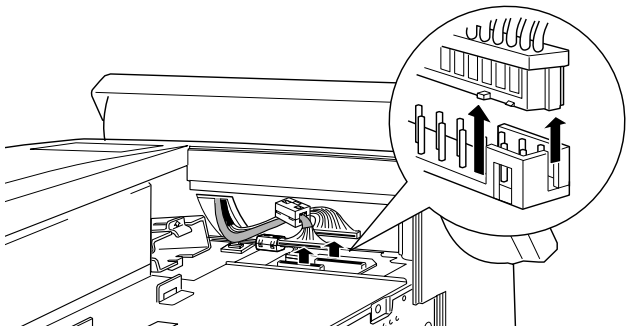
2. Remove the two screws from the printer unit or the printer tray.



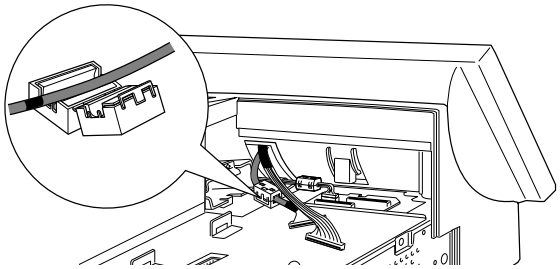
3. Remove the printer unit or the printer tray. When removing the printer unit, remove the printer cable from the connector.



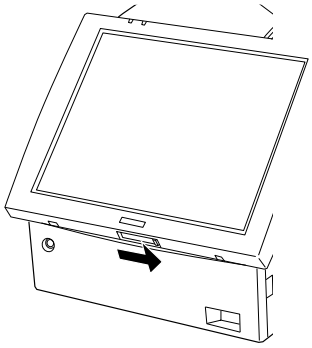
4. Remove the two cables for the LCD unit from their respective connectors.



5. Remove the ferrite core. Keep the removed ferrite core for installing on another LCD unit.



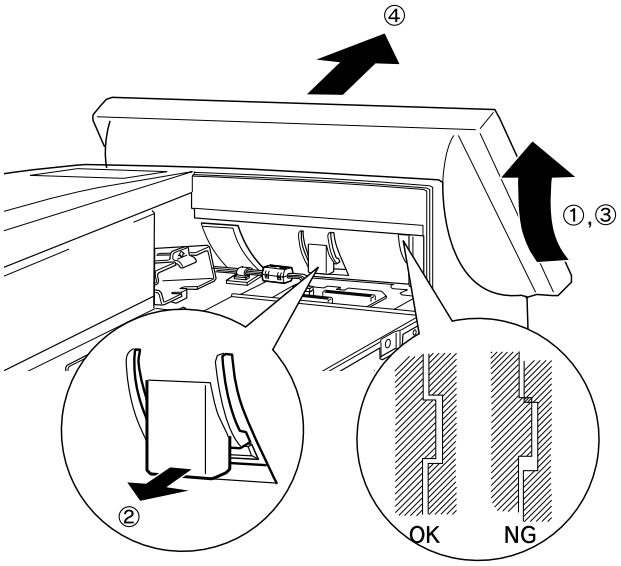
6. Slide the lock located under the LCD unit to the right for unlocking.



7. Slide the LCD unit until it hits the upper limit of the slide range.

   Slightly pull the part circled in the illustration below in the direction of the arrow, and slide the LCD unit upward further on the back.

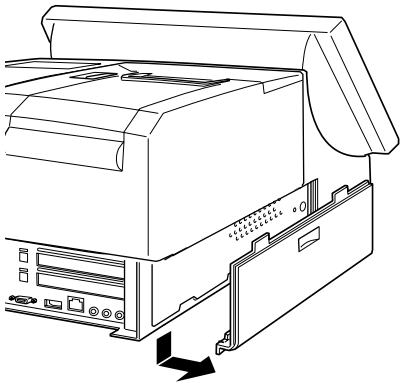
   Adjust the position of the LCD unit while watching the hole shown in the illustration below so that the tabs of the main body can be disengaged from the grooves in the LCD unit. Remove the LCD unit in the direction of arrow (4).



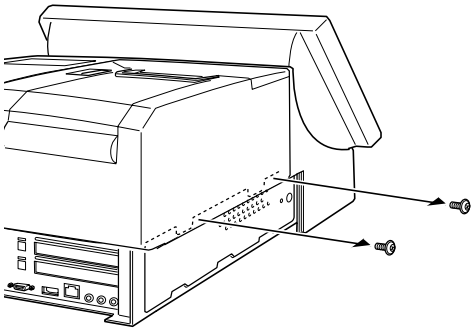
Installing an 84-Key Keyboard Unit (DM-KR084)

The 84-key keyboard can be installed instead of the LCD unit. The 84-key keyboard is installed by using the following procedure.

1. Remove the left side cover by sliding it downward.

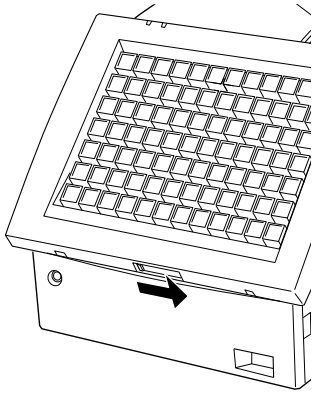


2. Remove the two screws from the printer unit or the printer tray.

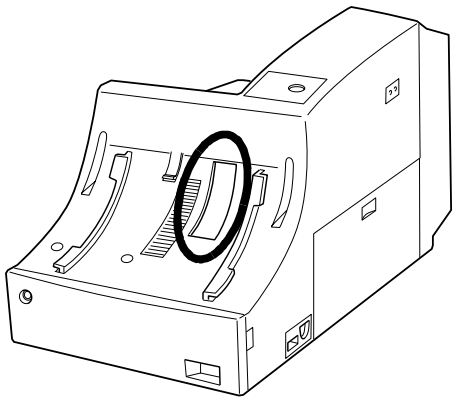


3. Remove the printer unit or the printer tray. When removing the printer unit, remove the printer cable from the connector.

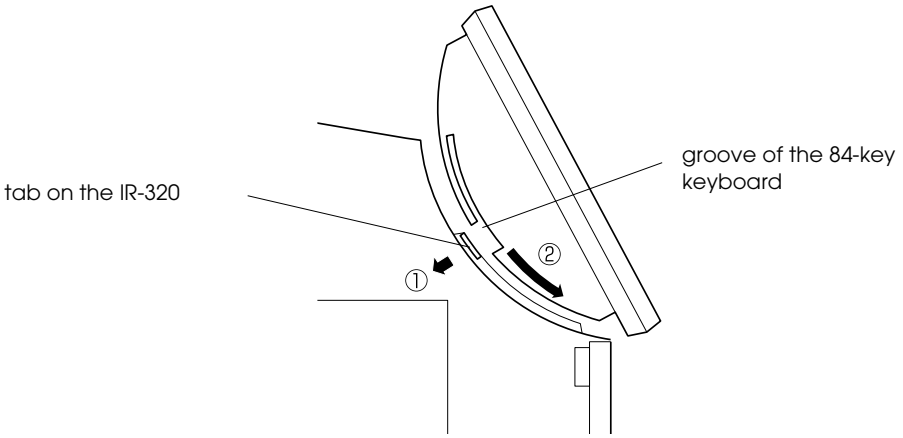
4. Set the lock knob under the 84-key keyboard to the release position.



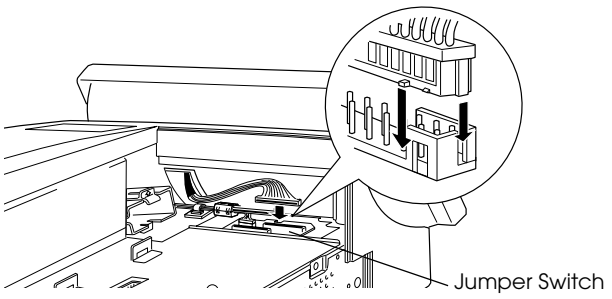
5. Thread one cable of the 84-key keyboard through the hole in the center of the IR-320.

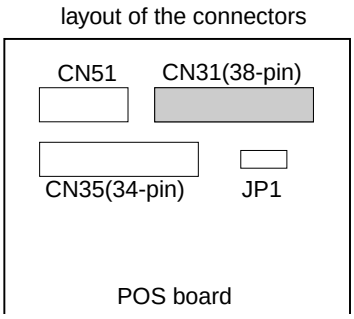


6. Engage the right and left grooves on the back of the keyboard with the right and left tabs on the IR-320. When both sides are engaged, slide the LCD unit down on the back for installation.



7. Connect the 38-pin connector cable for the 84-key keyboard to connector CN31.





8. Set the Jumper Switch(JP1) to "1-2."

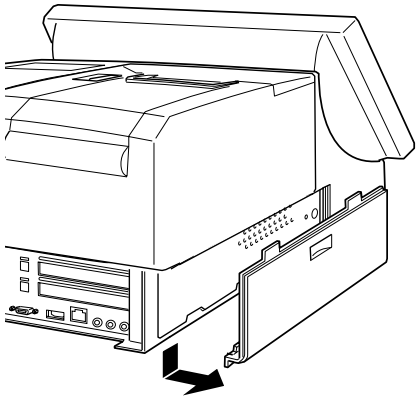
9. Return the lock knob under the 84-key keyboard to the lock position.

10. Install the printer unit or the printer tray, and lock it with two screws.

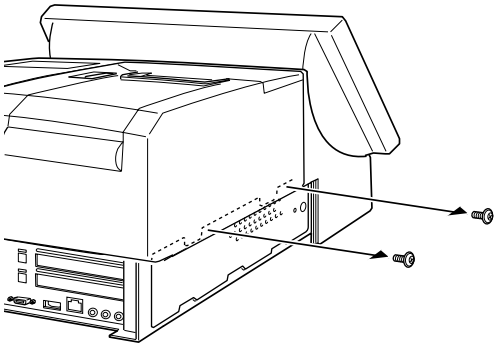
11. Reattach the side cover.

Removing an 84-Key Keyboard Unit

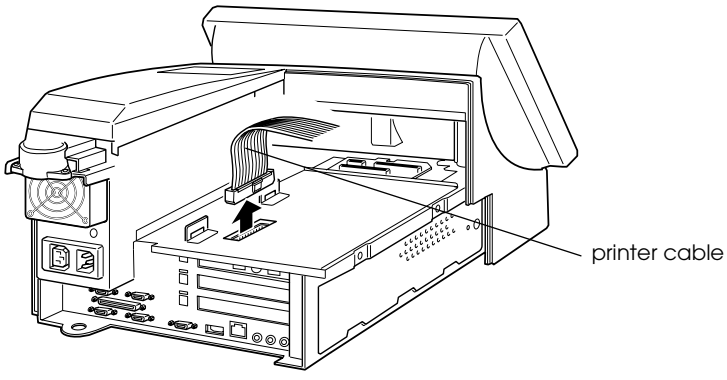
1. Remove the left side cover by sliding it downward.



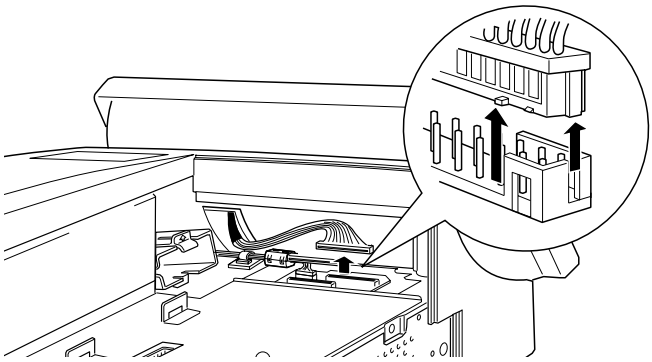
2. Remove the two screws from the printer unit or the printer tray.



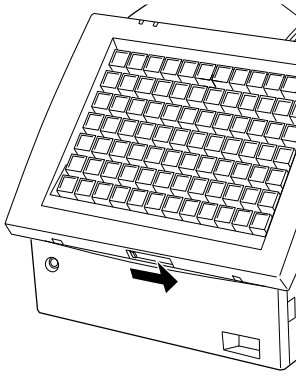
3. Remove the printer unit or the printer tray. When removing the printer unit, remove the printer cable from the connector.



4. Remove one cable for the 84-key keyboard from the connector, as shown below.



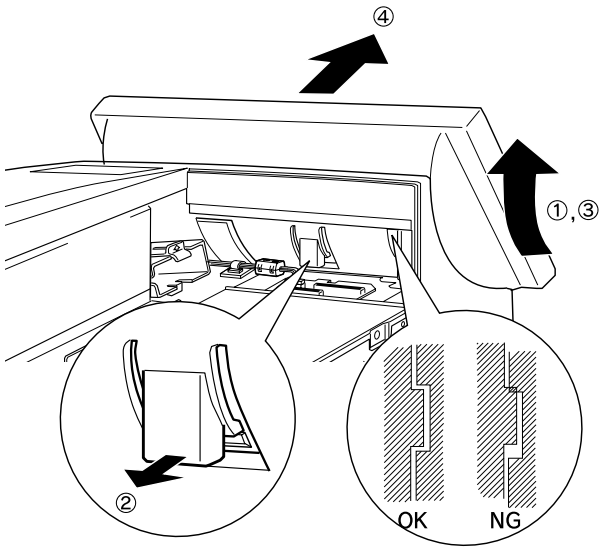
5. Slide the lock under the 84-key keyboard to the right to unlock it.



6. Slide the 84-key keyboard until it hits the upper limit of the slide range.

   Slightly pull the part circled in the illustration below in the direction of the arrow, and slide the LCD unit upward further on the back side.

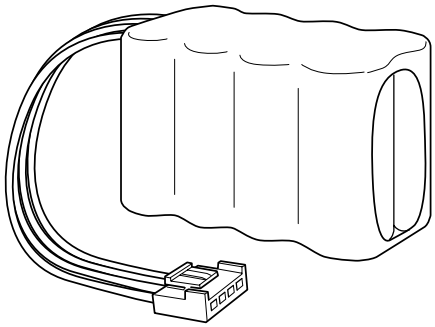
Adjust the position of the 84-key keyboard while watching the hole shown in the figure so that the tabs on the main body can be disengaged from the grooves in the 84-key keyboard. Pull the 84-key keyboard out.



Installing a Battery Unit (OI-R03)

The nickel-cadmium battery unit (OI-R03) backs up operations automatically if the power turns off abruptly, such as in the case of a power interruption.

The specifications for the battery unit are as follows:



Type:	Ni-Cd 8-cell, 600 mAh
Charging time:	About 32 hours
Charging method:	Trickle

The charging and backup times change according to environmental conditions.

To use the battery unit, install the dedicated Power Management Driver APM2.0 supplied with the battery unit. (for Windows NT)

The battery unit begins to be charged when the IR-320 main (side) power switch is turned on.

After installing a battery unit, set **`System Battery`** to **`Equipped`** using the Power Management menu in the BIOS setup utility. (See Chapter 6.)

Note (for Users in the United States):
The battery unit (OI-R03) is powered by a nickel-cadmium battery, which is recyclable. At the end of its useful life, it is illegal under various state and local laws to dispose of this battery into the municipal waste stream. Call 1-600-8-BATTERY for information on how to recycle this battery.

Note:
The battery unit is not charged even if power is being supplied and the main power switch is on unless the power is in full on mode.

The battery unit cannot be used for the IR-320 connected with the 3.5" HDD.

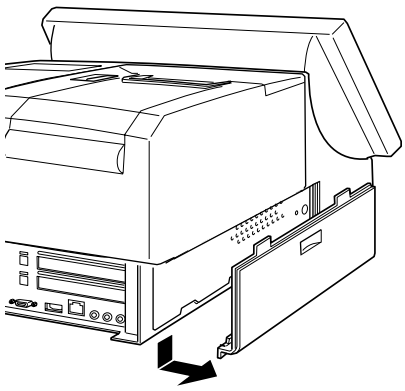
The battery unit has not yet been charged when it is purchased. Charge the battery unit before using it.

The nickel-cadmium battery must be recycled or disposed of properly.

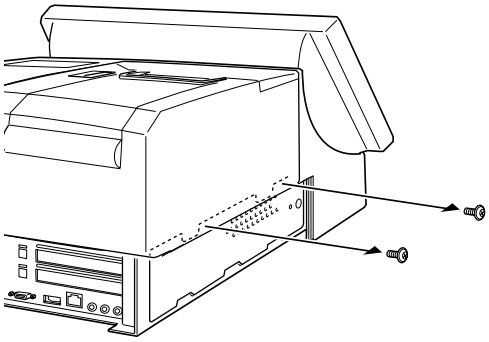
The life of the battery unit is approximately 2 to 2.5 years. Replace the battery unit accordingly.

Install the battery unit following the steps below.

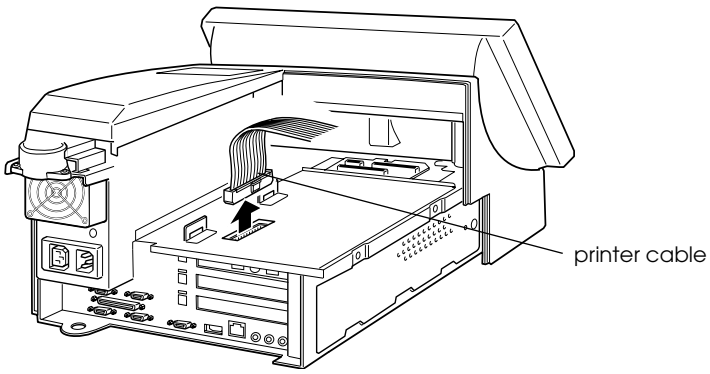
1. Remove the left side cover by sliding it downward.



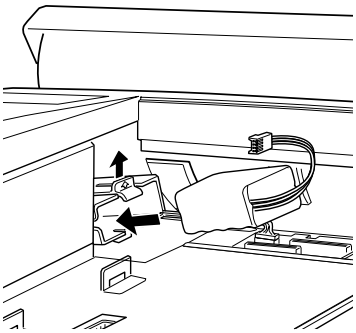
2. Remove the two screws from the printer unit or the printer tray.



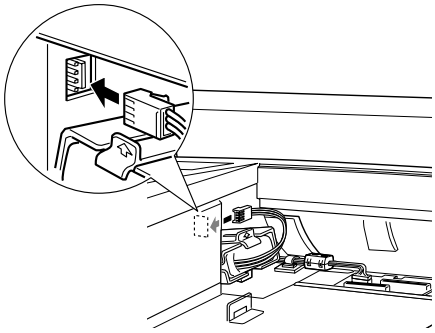
3. Remove the printer unit or the printer tray. When removing the printer unit, remove the printer cable from the connector.



4. Set the battery unit in the battery unit box. Pull the tab of the battery box up, and insert the battery unit into the battery box.



5. Connect the cable of the battery unit as shown below.



6. Reattach the printer unit or the printer tray using two screws.

7. Reattach the side cover.

Setting the BIOS

After the battery unit is installed, change the BIOS setting by using the following procedure:

1. When an external keyboard is not connected to the IR-320, connect the external keyboard to the mouse/keyboard connector.

2. Turn on the power supply to the IR-320.

3. While the following message is on the display, press **Del**:

```
Press DEL to enter SETUP.
```

4. The BIOS setup utility starts up.

5. Select **Power Management Setup** using the cursor keys and press **Enter**. The **Power Management Setup** menu appears.

6. Select **System Battery** and change the setting to Equipped.

7. After completion of the setting, press **Esc**. The main menu resumes.

8. Select **Save & Exit Setup** using the cursor keys, and press **Enter**. A dialog appears. Press **Y** and then **Enter.**

Installing a dedicated AC Line tool (Windows 2000/98)

The AC Line Tool is used to send a notification to the application that the system power has been changed from the AC Line to the battery drive in Windows 2000/98.

Installing a dedicated APM driver (Windows NT Only)

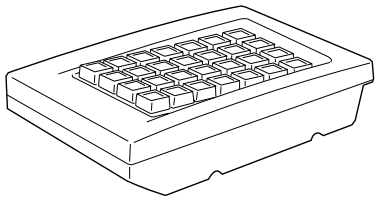
When using the battery unit with Windows NT, install the dedicated APM driver included with the battery unit.

- ❑ Power Management Driver APM2.0 for Windows NT

Refer to "Chapter 4 Utilities" for the installation procedure.

Installing a 28-Key Keyboard Unit (DM-K028)

The 28-Key Keyboard unit is an optional input device for the IR-320. It has 28 keys in total, 4 columns by 7 lines. The function of each key can be freely assigned by software. By assigning the same function to more than one key, these keys can be used as one large key. This keyboard also can be used in connection with a magnetic stripe reader (MSR).



Note:
The software stored on the floppy disk is for the IR-300. So do not use it for this system.

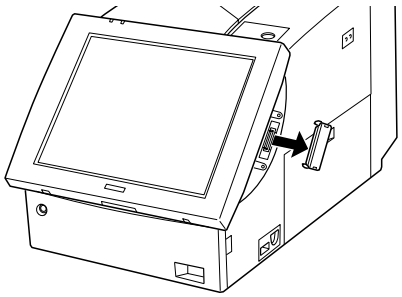
Operation progress

1. Confirm that OS is installed.
2. Change the key top and the key top cover of the 28-Key Keyboard unit.
3. Set up the 28-Key Keyboard unit to the IR-320 main unit.
4. Turn the power of the IR-320 on and install the K/B firmware relation utility.
5. Using the utility, set the key definition and write the setting contents to the K/B firmware. (The setting contents can be written and saved as the definition file.)
6. Now you can use the 28-Key Keyboard unit.

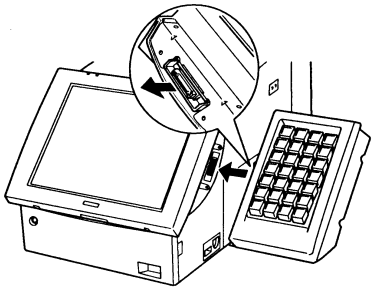
Setup procedure

Follow these steps to install the 28-Key Keyboard unit :

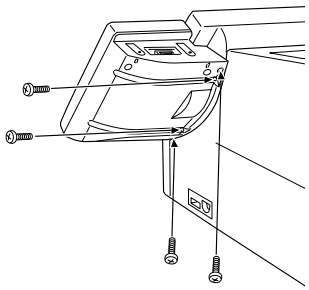
1. Remove the connector cover on the right side of the LCD unit. If an MSR unit is attached, remove it.



2. Connect the 28-Key Keyboard unit to the LCD unit.



3. Lock the 28-Key Keyboard unit with the four screws supplied with the 28-Key Keyboard unit.



⚠ CAUTION:

Do not tighten the screws too tightly. If the torque is too strong, the screws might be damaged.

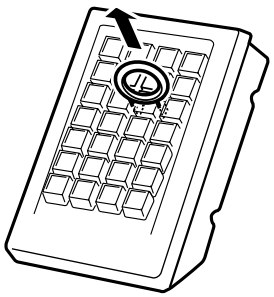
Handling Precaution

While inputting data from the input devices connected to the keyboard interface, such as the external keyboard and POS keyboard, do not input data from the MSR unit connected to the 28-Key Keyboard unit or the 28-Key Keyboard itself.

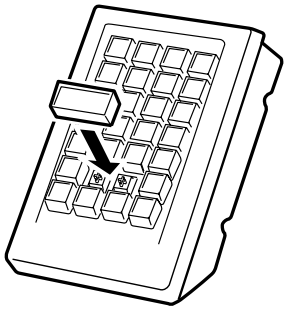
Changing a Key Top

To change a key top on the keyboard unit, use the following procedure:

1. Insert the key top remover supplied with the keyboard unit into the key top that is to be removed, as shown in the following figure:



2. When the key top remover is pulled up, the key top comes off.
3. To remove more than one key top, repeat steps 1 and 2.
4. Insert the new key top straight from the top.



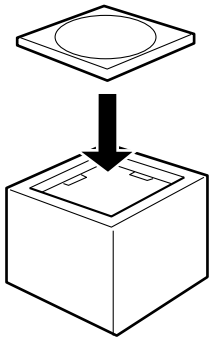
Installing key top covers

Key top covers are supplied with the keyboard unit. The face of each key top is concave, and the cover is installed on this key top. Install the key top cover using the following procedure:

Trim a piece of paper to the key size. Write down the key function on the paper, set it on the key top, and install the key top cover on the key top. The key function can then be conveniently identified at a glance.

1. Create a label for the key by trimming paper to the key size and writing the key function on the label. Set the label on the key top.

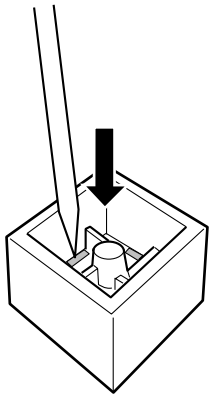
2. Snap the key top cover on the key top with the round concave facing upward. Firmly push it until the key top cover clicks.



Removing the key top cover

To remove the key top cover, use the following procedure:

1. Take off the key top using the key top remover.
2. Turn the key top over, and push the key top cover off using a pin or a sharp-pointed tool.



Utility

For the keying-in using the 28-Key Keyboard unit, the definition data of each key must be set using the utility and the setting contents must be written in the K/B firmware.

Refer to "Chapter 4 Utilities" about the installation and the way of using each utility.

Setting and writing the definition data of the 28-Key Keyboard in the K/B firmware

- ❏ The 28-key definition utility (The Windows version and the MS-DOS version)

Back up the definition data

The definition data is written in the K/B firmware but please back it up. The backup file is made in the 28-Key Keyboard definition utility. The backup file is witten in the K/B firmware with the definition data automatic setting utility. This way the same setting can be used for more than one system to make a setup, and it can be used as a batch file.

- ❑ The definition data automatic setting utility (The Windows vertion, the MS-DOS version)

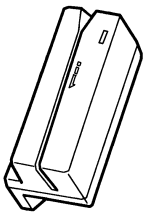
Using the layer function

- ❑ The 28-key definition utility compatible with the layer
- ❑ The 28-key automatic definition utility compatible with the layer for Windows version
- ❑ The 28-key automatic definition utility compatible with the layer for MS-DOS version
- ❑ The library for changing and reading the layer.

Confidential

Installing the MSR Unit (DM-MR123)

The LCD unit, the 84-key keyboard unit, and the 28-Key Keyboard unit are equipped with an interface for connecting the MSR.



Usable magnetic cards: ISO 7811, JIS X6301 type I track 1, 2, and 3

Note:
While inputting data from the input devices connected to the keyboard interface, such as the external keyboard and the POS keyboard , do not input data from the 28-Key Keyboard unit or the MSR unit

Note:
The software stored on the floppy disk is for the IR-300. So do not use it for this system

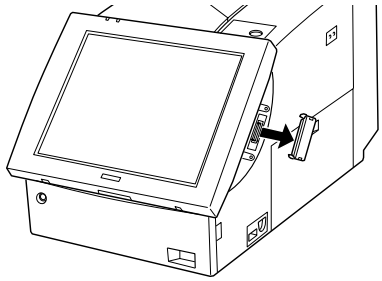
Operation progress

1. Confirm that OS is installed.
2. Set up the MSR unit to the IR-320 main unit. There is a way of attaching to the LCD unit and a way of to the 28-Key Keyboard unit.
3. Turn on the power of the IR-320 and install the K/B firmware relation utility.
4. Using the utility, write the MSR setting about in the K/B firmware directly. Or make a file describing the setting contents with a text editor, and write it in the K/B firmware using the utility.
5. It is now possible to input data of a magnetic card from the MSR unit.

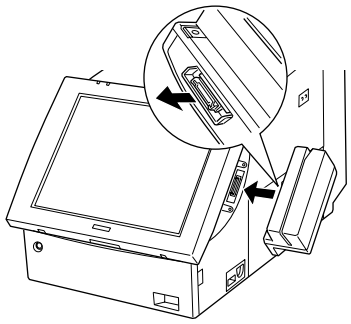
Mounting onto an LCD Unit

Connect the MSR unit to the LCD unit by following the procedure below.

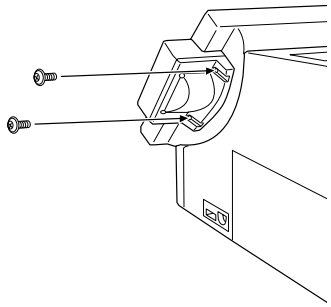
1. Open the connector cover of the LCD unit.



2. Connect the MSR unit to the MSR interface.



3. Secure the MSR unit, using the two screws.



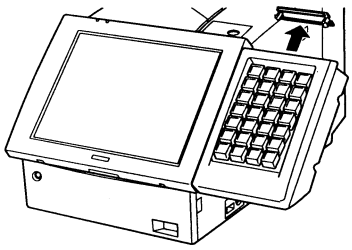
⚠ *CAUTION:*

Do not tighten the screws too tightly. If the torque is too strong, the screws might be damaged.

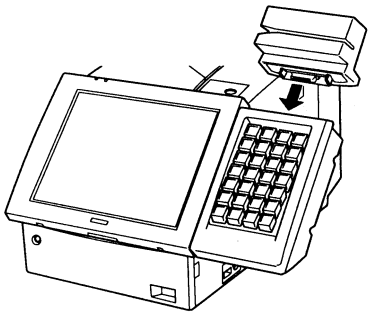
Mounting an MSR Unit to a 28-Key Keyboard Unit

Connect the MSR unit to the 28-Key Keyboard unit by following the procedure below.

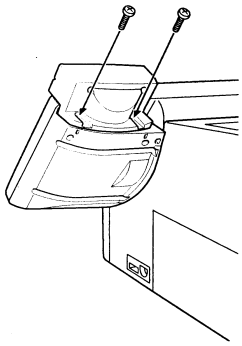
1. Remove the connector cover on the upper side of the 28-Key Keyboard unit.



2. Connect the MSR unit to the 28-Key Keyboard unit.



3. Lock the MSR unit with the two screws supplied with the MSR unit.



⚠ *CAUTION:*

Do not tighten the screws too tightly. If the torque is too strong, the screws might be damaged.

Utility

In order to input the magnetic card data by using the MSR unit, use the utilites to set up reading data match for various magnetic cards and writing in the K/B firmware of the setting contents.

Refer to "Chapter 4 Utililties" for the installation and the way of using for each utility.

Setting the function of the MSR unit and writing in the K/B firmware

- ❏ The keyboard firmware setting utility (The Windows version, the MS-DOS version)

Backup of the setting contents

Please make the file described the setting contents with the text editor and back it up. Write the backup file in the K/B firmware with the definition data automatic setting utility. This way can be used to set up the same setting for more than one system, and it can be used as the batch file.

- ❏ The definition data automatic setting utility (The Windows version, the MS-DOS version)

Installing a Printer Tray

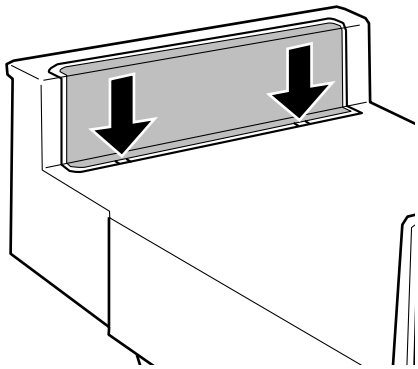
Dedicated printers are designed especially for the IR systems. Any of these printers can be installed directly on the main body. When a dedicated printer is not used, a printer tray can be installed and other types of TM printer can be installed on the printer tray.

Two types of printer tray can be connected to the IR-320.

Model name	Compatible printers
OI-R01-001	TM-T88 series, TM-U200 series
OI-R01-022	TM-H6000 series

Mount the printer tray by following the procedure below. If a TM printer is not being used, begin with step 3.

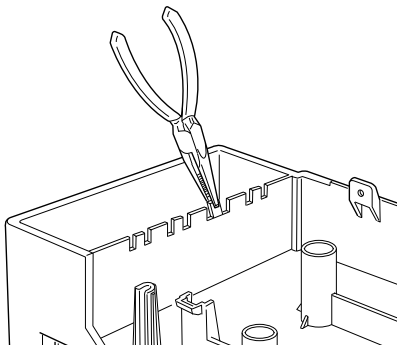
1. Remove the portion shadowed in the figure below from the printer tray. Cut off the two plastic connecting pieces (burrs) with a cutter or nippers, and pull the piece down toward you. Bend the part back and forth two or three times, so that it can be cut off. Pass the cable through the new opening.



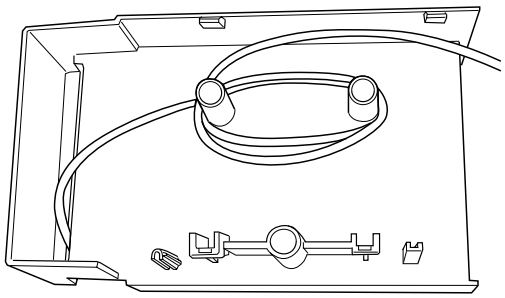
⚠ CAUTION:

If burrs are left after the hatched part is removed, they may cause cuts or scratches. Remove the burrs left on the printer tray with a cutter, or file them down.

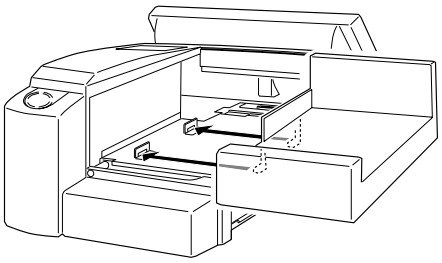
2. To get power for the TM printer from the IR-320, remove one or more tabs from the DC cable exit by breaking them off with a pair of pliers.



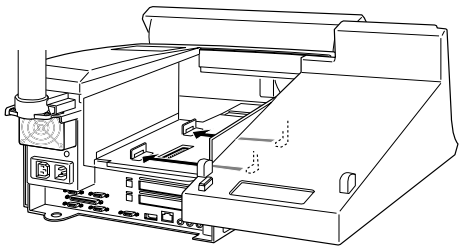
3. When setting up the TM printer on the printer tray, wrap the cable around the poles on the other side of the tray, as shown below, to keep it out of the way.



4. Slide the printer tray in the direction of the arrow, and fit the hooks on the printer tray into the slots in the IR-320.

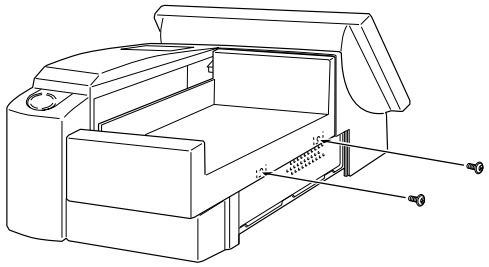


OI-R01-001

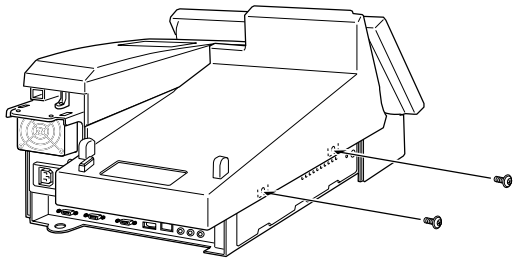


OI-R01-022

5. Attach the printer tray with two screws.

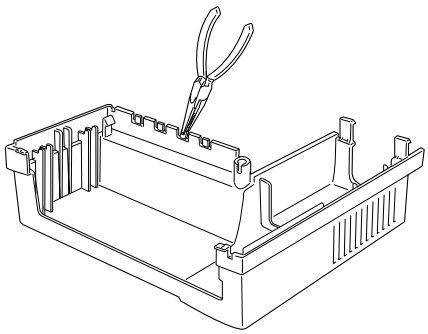


OI-R01-001



OI-R01-022

6. To get power for the TM printer from the IR-320, remove one or more tabs on the rear cover to make a hole for cables to pass through.



7. Attach the rear cover with one screw.

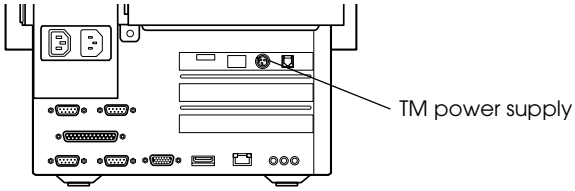
8. Install the TM printer on the printer tray.

Installing a Printer

Dedicated printers are designed especially for the IR systems. Any of theses printers can be installed directly on the main body. Other types of TM printer can be used on the printer tray described in the previous section.

Installing a TM Printer

The power supply to the printer can be tapped from the TM power connector.



⚠ CAUTION:

When a dedicated printer unit and the TM printer are connected together, do not tap power from the TM power connector. This connector does not have sufficient power for two printers. Use an appropriate power supply (for example, the PS-170) available for the TM printer.

The following TM printers can take power from the IR-320.

- ❏ TM-T85/88 series
- ❏ TM-U200 series
- ❏ TM-6000H series

For information on how to set up the TM printer, see the user's guide for that printer.

Operation progress

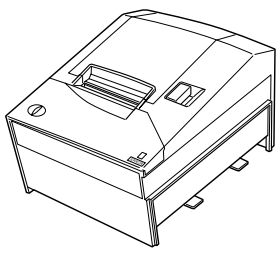
1. Attach the printer tray to the IR-320.
2. Install the TM printer on the IR-320.
3. Confirm the operation of the TM printer.
4. The TM printer can be used.

Refer to the User's Guide of each printer for the instalation and the operation confirmation procedure of the TM printer.

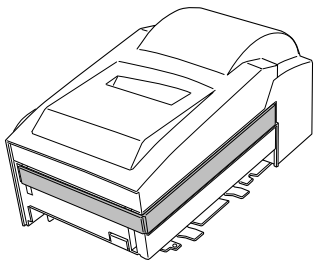
Installing a Dedicated TM Printer Unit

The following dedicated TM Printer units are available:

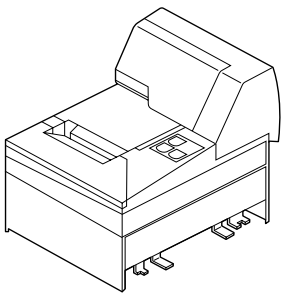
Model Name	Specification
TM-T88IIR	Thermal printer (58 mm, 80 mm {2.3", 3.2"})
TM-U210AR	Serial impact dot matrix printer (two-color)
TM-H3000R	Thermal receipt with slip printer



TM-T88IIR



TM-U210AR



TM-H3000R

The serial port for the dedicated TM Printer unit is assigned to COM3 by default.

Operation progress

1. Install the dedicated printer unit on the IR-320.
2. Turn on the power supply of the IR-320 and start up the Device Diagnostics Utility.
3. Confirm that the dedicated printer unit is connected correctly and it can print out by using the Device Diagnostics Utility.
4. The dedicated printer unit can be used.

Note:
Refer to "Printing out by Windows" for printing from the Windows application to the dedicated printer unit.

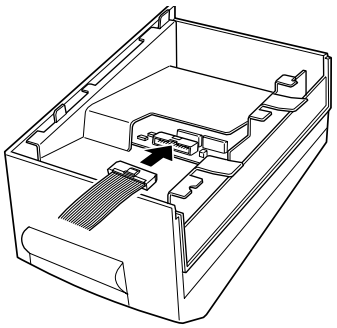
Setup procedure

Use the following procedure to connect the printer unit.

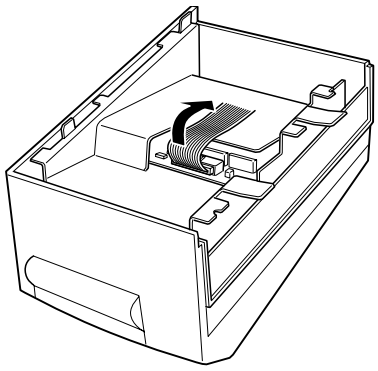
1. Turn on DIP switch 2-7 of the printer unit.
2. When connecting a customer display, set the baud rate to be the same for the dedicated printer as the customer display by setting their DIP switches.

Note:
The customer display and the baud rate of the dedicated printer unit are set to the same speed at the factory shipment.

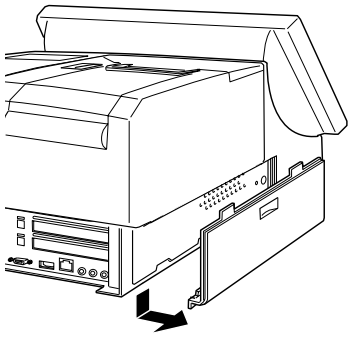
3. Connect one end of the cable to the connector on the rear of the printer unit.



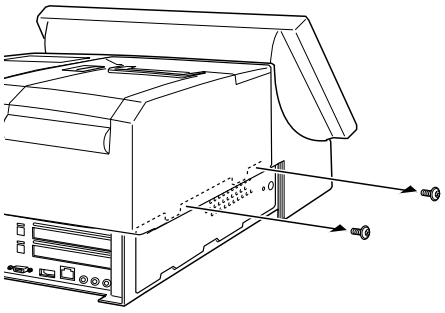
4. Bend the cable as shown below.



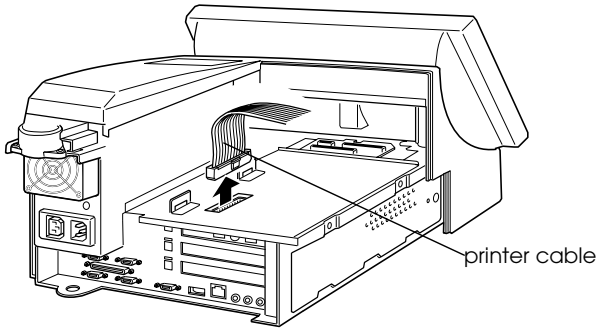
5. Remove the side cover by sliding it downward.



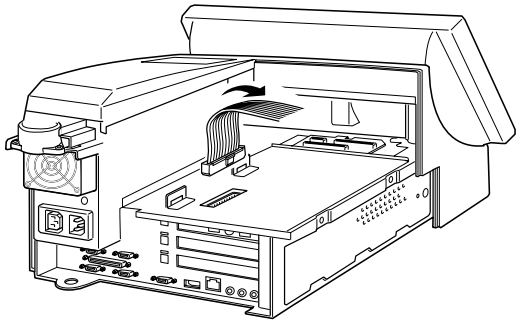
6. Remove the two screws as shown below.



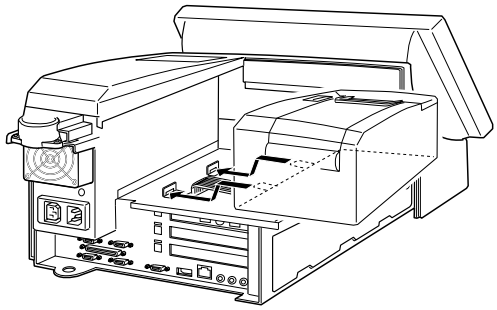
7. When a printer unit or printer tray is already installed, remove them. When removing the printer unit, disconnect the printer cable for the IR-320.



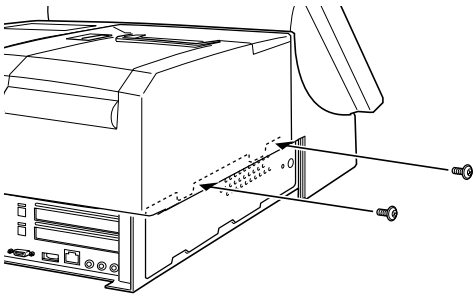
8. Connect the cable for the printer unit, and bend it as shown below.



9. Slide the printer unit in the direction indicated by the arrows so that the hooked area on the printer unit fits into the groove on the IR-320. Make sure the cable is not hooked by the projection on the plate.



10. Secure the printer unit with two screws.



11. Reattach the side cover.

Device Diagnostics Utility

It is possible to confirm the operation of a dedicated printer unit by using the Device Diagnostics Utility.

If you turn on the power supply of the IR-320 and press the F10 key while the POST (Power On Self Test) screen is displayed, the Device Diagnostics Utility is displayed.

TM/Drawer area	It confirms the communication speed and the status of the dedicated printer unit.
Device Tests menu	When executing TM print test, a test printing is printed to the dedicated printer unit.

Refer to "Device Diagnost ics Utility" of Appendix A [BIOS Functions] for the operating method of the Device Diagnostics Utility.

Other Operating Confirmation

The operation of a dedicated printer unit can be confirmed by using the following procedure instead of using the Device Diagnostics Utility.

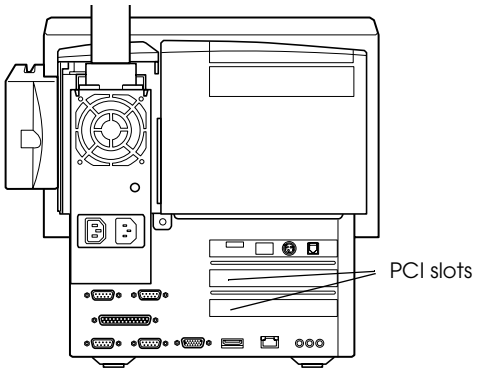
1. While holding down the Paper feed switch on the upper part of the IR-320, turn on the power supply of the IR-320.

2. The setting contents of the present printer are printed out from the dedicated printer unit. Confirm that it is printed out correctly.

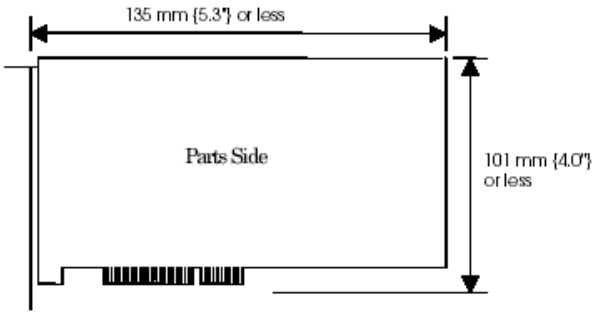
Confidential

Installing a PCI Board

The IR-320 has two PCI expansion slots.



The maximum dimensions of the applicable PCI boards are as follows:



⚠ CAUTION:

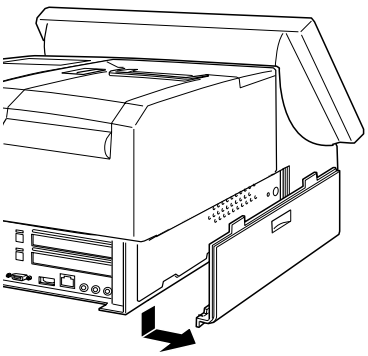
Before installing the PCI board, carefully confirm that it operates normally.

Follow the procedure below to install a PCI board.

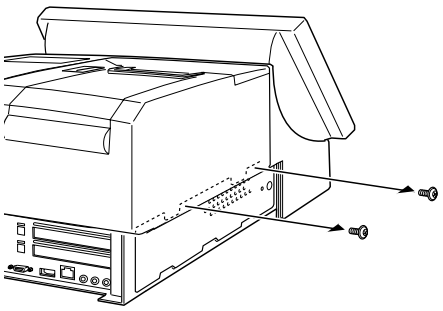
⚠ CAUTION:

- *Before setup, discharge static electricity on your body. If you do not discharge static electricity, trouble could result. Touch a grounded metal surface to allow static electricity to discharge.*
- *Do not touch the connectors. Dirt may cause a malfunction.*
- *Do not apply excessive force to connectors, cables, and screws during connection. Excessive force may damage the connection parts or screw threads.*

1. Remove the left side cover by sliding it downward.

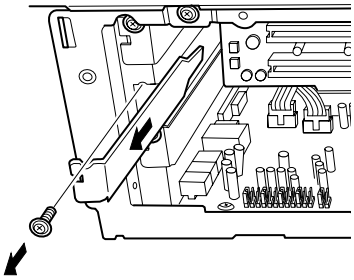


2. Remove two screws from the side panel.



3. Remove the side panel.

4. Remove the retaining screw securing the slot cover. Keep the screw to secure the PCI board. Save the PCI slot cover.



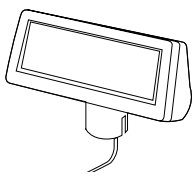
5. Push the board in firmly but carefully to insert it fully. You should feel the connectors fit into place. If the board does not go in smoothly, do not force it; pull it all the way out, and try again.
6. Lock the PCI board with the screws removed in step 4.
7. Reattach the side panel with two screws.
8. Reattach the side cover.

When you remove the PCI board, be sure to attach a slot cover.

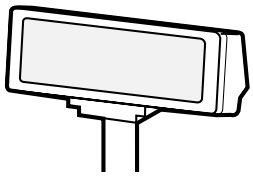
Installing a Customer Display

The following customer displays can be connected to the IR-320.

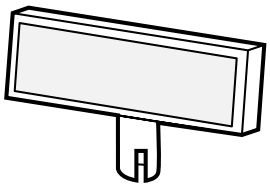
Model name	Specification
DM-D110/210	20 characters x 2 lines
DM-D500	256 x 64 dots (graphics mode) 32 characters x 4 lines (font A) / 42 characters x 8 lines (font B)



DM-D110

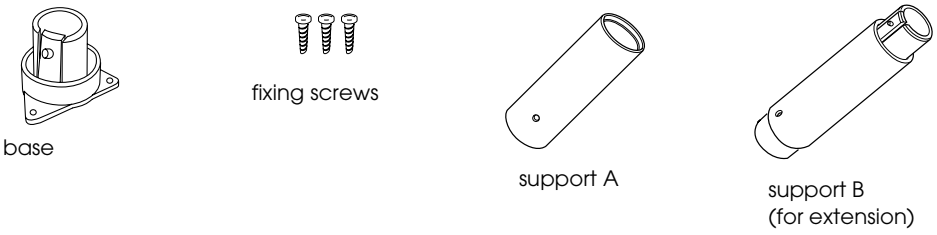


DM-D210



DM-D500

Depending on its type, the customer display may need the optional DM-D extension unit for the IR series (DP-504) for connection to the IR-320. Check your customer display to determine whether it needs the extension.



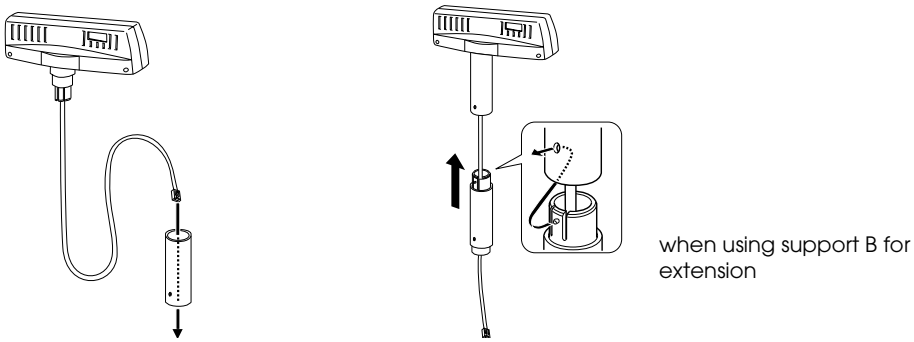
Operating progress

1. Set up the Customer display with the IR-320.
2. Turn on the power supply of the IR-320 and start up the Device Diagnostics Utility.
3. Confirm that the Customer display is connected correctly and displays correctly by using the Device diagnostics Utility.

Setup procedure

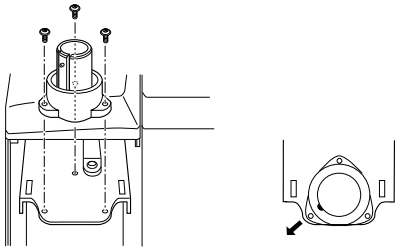
Follow the procedure below to attach a Customer display.

1. Pass the cable for the DM-D500 through support A, and attach support A to the DM-D500. When using support B for extension, insert the tab on support B into the hole on support A until it clicks.

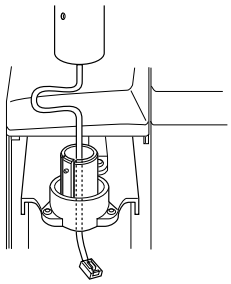


2. Attach the base to the attachment position on the IR-320.

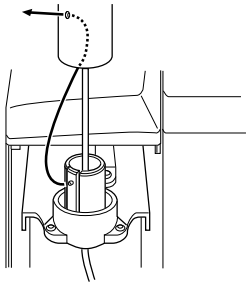
Note:
When attaching the base, note that the corners of the base are set as shown below.



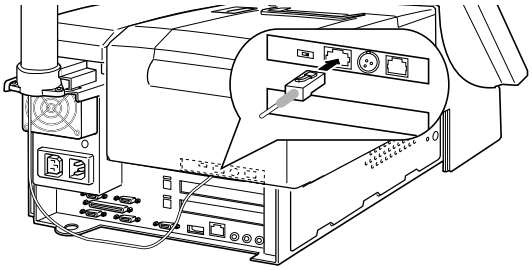
3. Pass the cable for the DM-D500 through the base.



4. Install the extension on the base. Be sure that the projection on the base snaps into the hole in the extension.

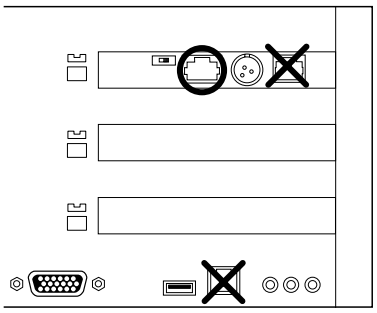


5. Connect the cable for the DM-D500 to the DM connector on the IR-320.



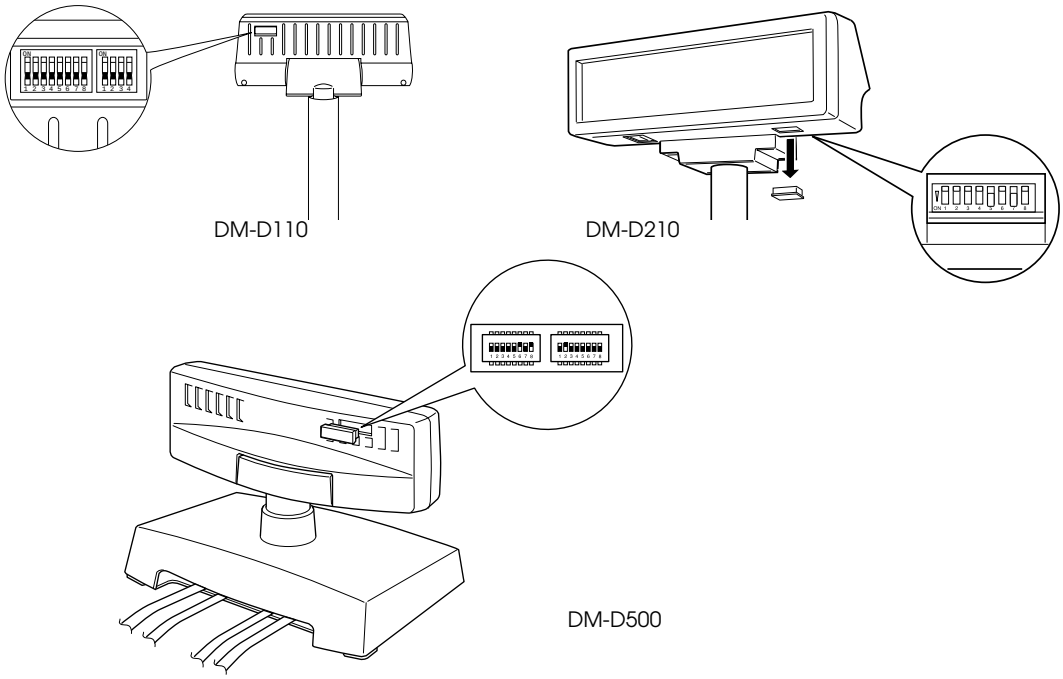
⚠ *CAUTION:*

- *Detour the extra length of the cable around the power fan. If the cable interferes with the power fan, abnormal noise may be emitted, or the cable may be disconnected.*
- *Do not connect any cable other than the customer display cable, such as a telephone line, to the connector for the customer display.*



6. Set the DIP switch so that the baud rate of the customer display is the same as the baud rate of the printer unit. The position of the DIP switch should be set as follows:

Note:
The customer display and the baud rate of the dedicated printer unit are set to the same speed at the factory shipment.



For the DM-D110 and DM-D210, set SW5, SW6, and SW7 of DIP switch bank 1 (DSW1) as indicated in the following table

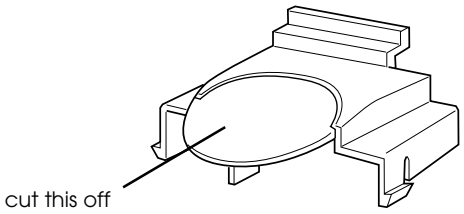
SW1-5	SW1-6	SW1-7	Transfer speed (bps)
ON	ON	ON	2400
OFF	ON	ON	4800
ON	OFF	ON	9600
OFF	OFF	ON	19200
ON	ON	OFF	38400
OFF	ON	OFF	57600
ON	OFF	OFF	115200 (*1)

(*1) When using the data pass through connection (default setting), you must not set 115200 bps.

For the DM-D500, set SW6, SW7, and SW8 of DIP switch bank 1 (DSW1) as indicated in the following table:

SW1-6	SW1-7	SW1-8	Transfer speed (bps)
ON	ON	ON	2400
OFF	ON	ON	4800
ON	OFF	ON	9600
OFF	OFF	ON	19200
ON	ON	OFF	38400
OFF	ON	OFF	57600
ON	OFF	OFF	115200

7. Cut off the portion of the customer display cover shown below. Cut off the three connecting pieces (burrs) with a cutter.



Device Diagnostics Utility

By using the Device Diagnostics Utility you can confirm that the customer display is connected correctly and displays correctly.

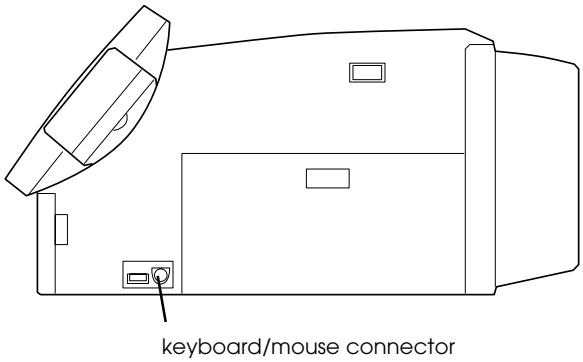
Device Diagnostics Utility is displayed when the power supply of the IR-320 is turned on and then the F10 key is pressed while the POST (Power On Self Test) screen is displayed.

DM area	Confirm the communication speed and the status of the customer display.
Device Tests menu	WhWhen executing the DM display test, the test message is displayed in the customer display.

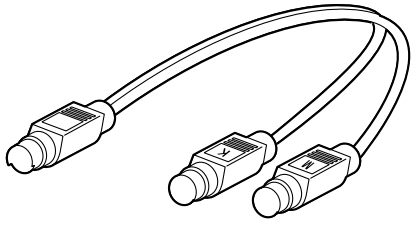
Refer to "Device Diagnostics Utility" in Appendix A [BIOS Functions] about the operation of the Device Ddiagnostics Utiity.

Installing a Mouse/Keyboard

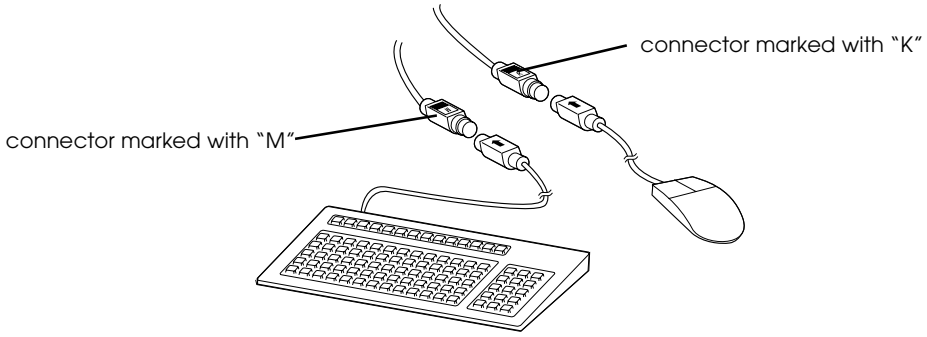
A mouse or a keyboard can be connected to the keyboard/mouse connector on the IR-320.



To connect both of them, you must use a commercially available branch cable.



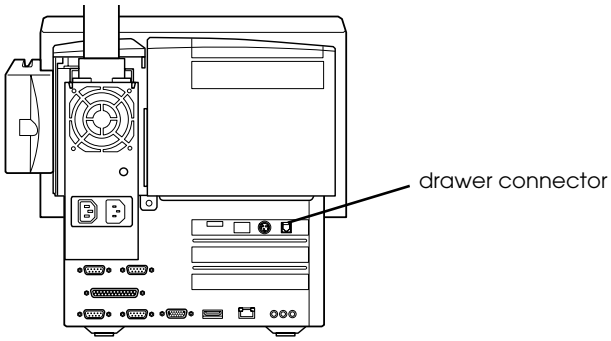
Note:
When using a keyboard/mouse branch cable, you need to attach the mouse to the keyboard connector and the keyboard to the mouse connector. Therefore, you connect the keyboard to the "M" connector and the mouse to the "K" connector.



Installing a Cash Drawer

The cash drawer is controlled via the printer unit. If the printer unit is not connected, the cash drawer cannot be controlled.

When a dedicated printer is connected, connect the cash drawer connector to the drawer connector on the IR-320.



When another type of TM printer is connected, connect the cash drawer connector to the TM printer drawer connector.

Note:
When a non-dedicated-type TM printer is connected, do not connect the cash drawer connector to the drawer connector of the IR-320.

⚠ CAUTION:

Do not connect a telephone line to the DK connector.

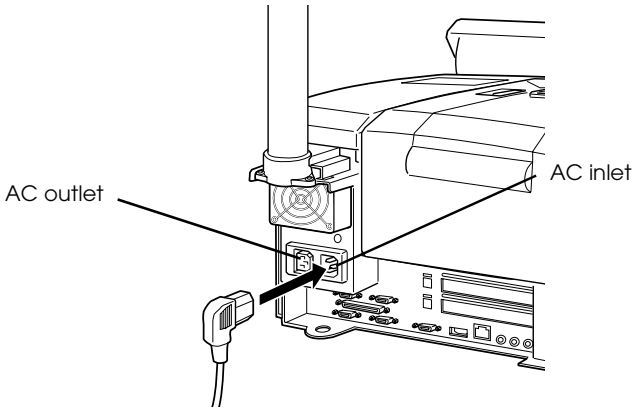
Attaching a Power Cable

⚠ *WARNING:*

- *Never insert or disconnect the power plug with wet hands. This may result in severe shock.*
- *Do not place multiple loads on the power outlet (wall outlet). Overloading the outlet may lead to fire.*
- *Do not plug in the power cable if the power plug is contaminated with dust or other foreign matter. Doing so may cause a fire.*
- *Insert the power plug fully. Failure to do so causes the power plug to heat up and may cause a fire.*
- *Regularly remove the power plug from the outlet and clean the base of the prongs and between the prongs. If you leave the power plug in the outlet for a long time, dust may collect on the base of the prongs, causing a short and fire.*

Follow these steps to attach the power cable:

1. Loosen the screws of the rear cover, and remove the rear cover by pulling down the upper part of the rear cover.
2. Connect the power cable to the IR-320. The power cable for the outlet can be connected, also.



3. Connect the power plug to the power outlet.
4. Reattach the rear cover with the screw.

Installing Peripheral Devices to the COM Port

The IR-320 has four serial ports. (COM1, COM2, COM5, COM6). Also it can output +5V or +12V at the 1st pin by the jumper setting (JP7~JP18) on the mother board.

COM5 and COM6 can be used in the default setting. Change the BIOS setting and assign COM5 and COM6 to the IRQ not being used.

Note:
COM3 (for the dedicated printer unit / the customer display) and COM4 (for the touch panel) cannot be used because they are set for the dedicated the IR-320.

Note:
Do not use a serial mouse.

Setup

Setting a Jumper

It can output +5V or +12V power at the 1st pin of the serial connector by the jumper setting (JP7~JP18) on the mother board. As the DCD signal is set to output in the default and the power supply is not output. Refer to "Chapter 1 Jumper Locations and Settings" for the jumper setting.

⚠ CAUTION:

(❑ Making a mistake in setting the jumpers can damage the device or cause it to heat up and possibly cause a fire. Confirm that the jumper setting is correct before connecting the unit.

COM5, COM6 Setting

COM5 and COM6 cannot used as the default. To use, The BIOS setting must be changed by using the following procedure. Refer to Chapter 5 "BIOS Functions" for the datails of the BIOS.

Note:
When setting the BIOS, always connect the PS/2 keyboard. It cannot be operated from the touchpanel.

1. Connect the PS/2 keyboard to the IR-320 and turn on the power. If you press **Del** during the POST, the BIOS setup utility starts.
2. Choose **`Integrated Peripherals`** and press **Enter**.
3. Choose **`Onboard Serial Port 5`** and **`Onboard Serial Port 6`** from the **`Integrated Peripherals`** menu and then set the I/O address and the IRQ number.

Note:
*For the I/O address and the IRQ number, make the other port (the parallel port etc.)not to be used (**Disabled)** and then set the I/O address and IRQ number.*

4. Press **Esc** to return to the main menu, choose **`Save & Exit Setup`** and press **Enter**. The dialog is displayed; input "Y" and press **Enter**.

5. The system starts up and COM5 and COM6 can be used.

6. The system starts up and COM5 and COM6 can be used.

Operating Confirmation Of The Hardware Device Diagnostics Utility

Whe using the Device Diagnostics Utility, the communication lines between the devices connected with the IR-320 can be tested.

The Device Diagnostics Utility can test the following.

- The connecting condition of each device
- The printing test of the TM printer
- The display test of the customer display
- The operating test of the cash drawer
- The loopback test of the serial port
- The loopback test ot the LPT1 port
- The printing test of the printer connected to the LPT1

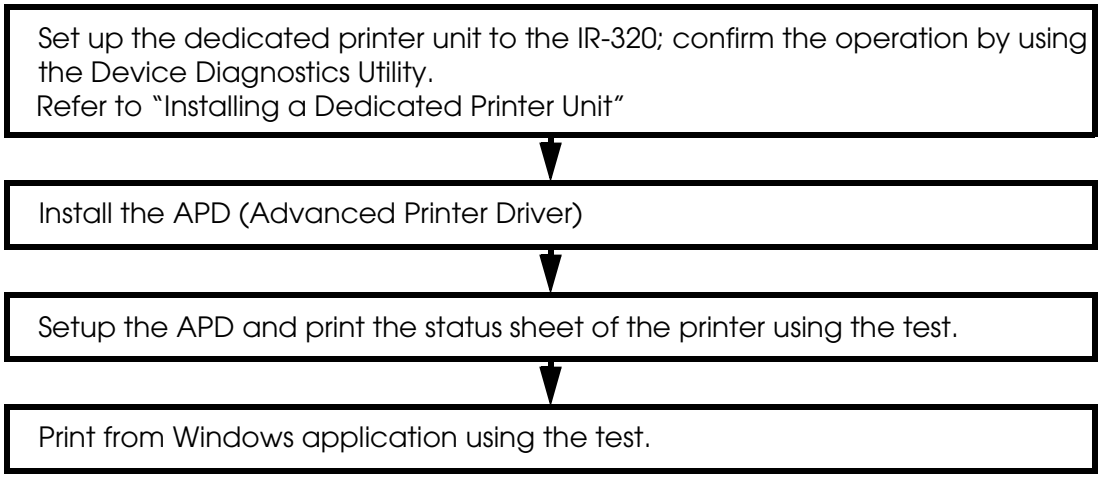
Refer to the Device Diagnostics Utility in Chapter6 "Device Diagnostics Utility" for details.

Printing Using Windows

It is possible to print to the dedicated printer unit of the IR-320 using Windows.

Note:
Before executing a test printout from Windows, set up the dedicated printer unit correctly and confirm the operation using the Device Diagnostics Utility. If it does not set up correctly, the test printout from Windows is not executed normally. Refer to "Installing a Dedicated Printer Unit" for the setup procedure and the operating confirmation procedure of the Device Diagnostics Utility.

Operating progress


Set up the dedicated printer unit to the IR-320; confirm the operation by using the Device Diagnostics Utility.
Refer to "Installing a Dedicated Printer Unit"
Install the APD (Advanced Printer Driver)
Setup the APD and print the status sheet of the printer using the test.
Print from Windows application using the test.

Installing procedure of APD

Install the APD using the following procedure.

1. Start up the system and execute the driver of the following folder.
   C:\BACKUP\APDRV******.EXE

2. The License Agreement dialog is displayed. Select the "I accept the terms in the License agreement." check box, click **NEXT**.

3. The Location to Save Files dialog is displayed. Choose the folder in the installation place and click **NEXT**. C:\Program Files\..\EPSON Advanced Printer Driver\Setup\ are chosen in the default.

4. The file is extracted and the Select OS dialog is displayed. Choose your OS in the Select Install OS box. Confirm that **US** is chosen in Select Install Language. Click **NEXT**.

5. The Select Module dialog is displayed. Choose the printer driver to install. Also, choose the overwriting condition of the file in Universal Driver Overwrite. The printer driver has the following types. When you click **Finish**, the file is copied into the specified folder.

Receipt	It is printed on the receipt paper without changing the character size.
Reduce35	It prints the print image of Windows in a reduced size: the receipt paper size.

6. After the installation of the APD is completed, the dialog to confirm the restart of the computer is displayed. Click **Yes**.

7. Restart the system.

Setting a Printer driver and test printing

Set the printer driver and test print by following the steps below.

1. Start the system and choose **Setting** - **Printer** in the **start** menu.

2. The Printers dialog is displayed. Confirm that the icon of the installed printer driver is displayed.
   "Ex. for the TM-T88IIR"

EPSON TM-T88II(R)Receipt	It prints at usual character size.
EPSON TM-T88II(R)Reduce35	It prints as a reduction in the receipt paper size.

3. Click the icon of the printer driver for printing and right click and choose **Properties** from the menu that is displayed.

4. Click the **Ports** tab and choose COM3 for "Print to the following port." Click Apply. More than one printer driver can be set to the same port.

5. Click the **General** tab and click **Print Test Page**, and then the print of the test page starts. Confirm that it is printed normally.

6. When the print of the test page is completed, the confirmation dialog is displayed. When it is printed mormally, click **OK** and close the dialog.

Note:
When it is not printed normally, it is possibly caused by a mistake in the setup and the setting contents. Refer to the procedure of "Installing a Dedicated Printer Unit" and "The Installation procedure of the APD," and then reconfirm that it is set normally.

Confidential

Test printing from a Windows application

The test print can be done from a Windows application. It can print a document made with the text editor and the image data can be printed from software such as the Internet Explorer or Paint.

Choose the printer driver to use according to the print purpose.
"Ex. For the TM-T88IIR"

EPSON TM-T88II(R)Receipt	It prints at usual character size.
EPSON TM-T88II(R)Reduce35	It prints as a reduction in the receipt paper size.

Change the printer driver to use by following the steps below.

1. Start the system and choose **Setting** - **Printer** in the **start** menu.
2. The Printers dialog is displayed. Confirm thet the icon of the installed printer driver is displayed.
3. Click the icon of the printer driver for using to print and choose Set as Default Printer from the menu that is displayed by the right click.
4. The icon of the printer driver has a check mark and it is set as the default printer.

Chapter 3
OS and Drivers

Outline of This Chapter

This chapter tells which Operating Systems and Drivers can be used and how to install and uninstall them.

Operating Systems

The following Operating Systems can be used for the IR-320.

- ❑ Windows 2000 Professional (There is a version preinstalled by EPSON)
- ❑ Windows XP Professional Edition
- ❑ Windows 98 SE (There is a version preinstalled by EPSON)
- ❑ Windows NT Workstation 4.0 SP6a (There is a version preinstalled by EPSON)
- ❑ MS-DOS Ver.6.22

Drivers and Utilities

Drivers for using the IR-320 are on the Driver CD-ROM included with the IR-320. If the operating system is pre-installed, the drivers are also installed.

Driver CD-ROM for the IR-320

In case you use a locally procured OS on the IR-320, the drivers for using the peripheral devices are on this CD-ROM.

The CD-ROM directory is shown below.

```
Root                                CDVER.TAG
 |--- DOS62                         Drivers for MS-DOS
 |       |--- Cdrom          :          CD-ROM drivers
 |       |--- Network        :          Network drivers
 |       |--- Touch          :          Touch Panel drivers
 |--- WIN98                         Drivers for Windows98
 |       |--- Chipset        :          Chipset drivers
 |       |--- Dissw          :          Power button prohibited setting tool
 |       |--- Epsbatt        :          AC line tool
 |       |--- Logon          :          Logon tool
 |       |--- Network        :          Network drivers
 |       |--- Sound          :          Sound drivers
 |       |--- Touch          :          Touch Panel drivers
 |       |---Video           :          Video drivers
 |--- WINNT                         Drivers for Windows NT
 |       |--- Logon          :          Logon tool
 |       |--- Network        :          Network drivers
 |       |--- Sound          :          Sound drivers
 |       |--- Touch          :          Touch Panel drivers
 |       |---Video           :          Video drivers
 |--- WIN2K                         Drivers for Windows2000
 |       |--- Chipset        :          Chipset drivers
 |       |--- Dissw          :          Power button prohibited setting tool
 |       |--- Epsbatt        :          AC line tool
 |       |--- Epserial       :          Serial Driver
 |       |--- Logon          :          Logon tool
 |       |--- Network        :          Network drivers
 |       |--- Sound          :          Sound drivers
 |       |--- Touch          :          Touch Panel drivers
 |       |---Video           :          Video drivers
 |--- WINXP                         Drivers for Windows XP
 |       |--- Chipset        :          Chipset drivers
 |       |--- Epsbatt        :          AC line tool
 |      |--- Epserial        :          Serial Driver
 |       |--- Network        :          Network drivers
 |       |--- Touch          :          Touch Panel drivers
 |       |---Video           :          Video drivers
 |--- COMMON                        Common OS utility drivers
   |--- OPOSADK              :          OPOS ADK
   |--- APDRV                :          Advanced Printer driver
   |--- TMDRV                :          TM driver
   |--- KEYCFG               :          DM-MS Definition tool
            |--- WIN         :
                  |--- DISK1 :
            |--- DOS         :
```

Readme.txt files are in both the root directory and in subdirectories of the root directory.

1. The Readme.txt file in the root directory contains an overview of this CD-ROM and refers to the Readme.txt files in the various subdirectories.

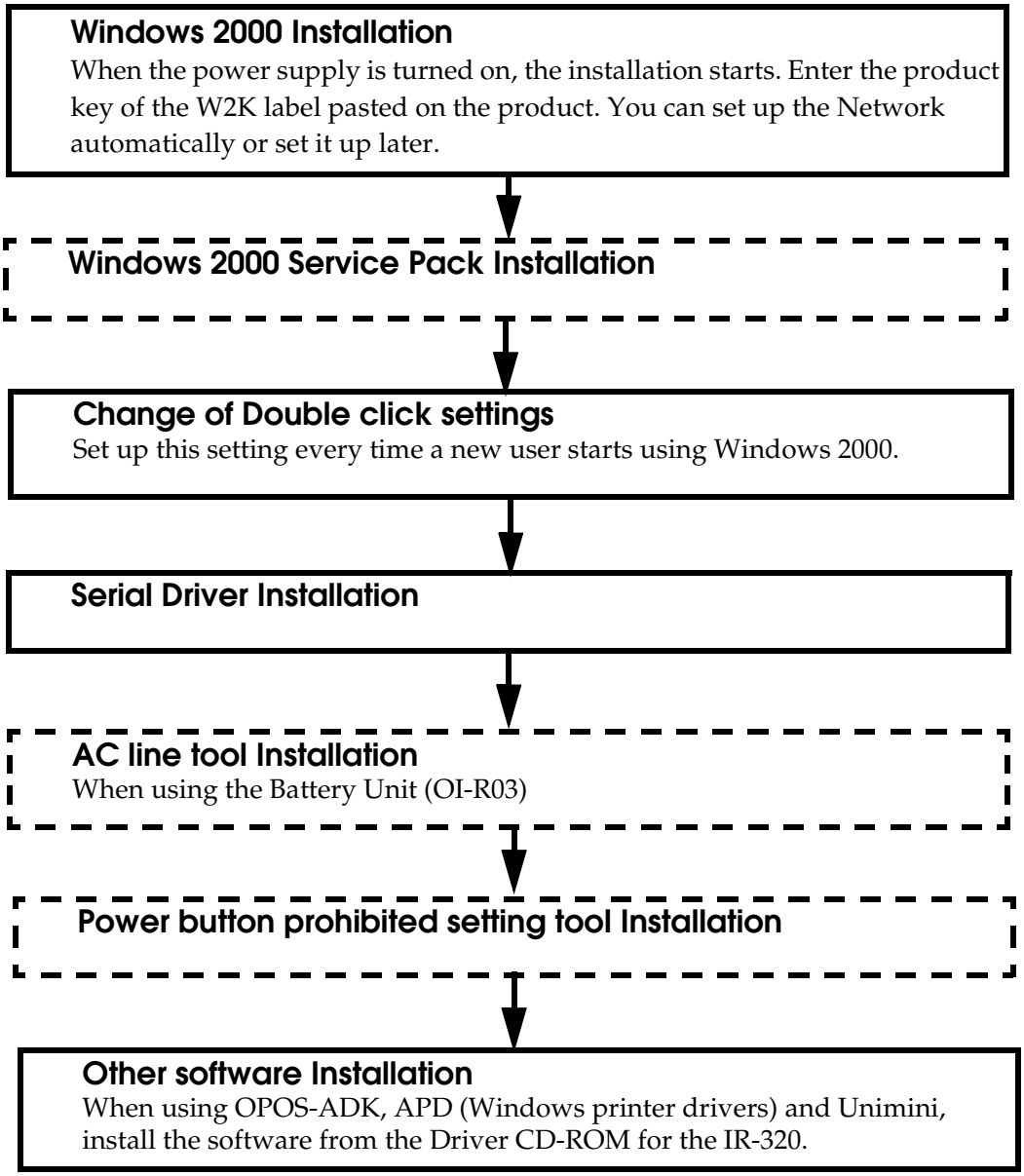
2. The Readme.txt files in the operating system subdirectories explain driver installation/ un-installation for each operating system.

3. Readme.txt files for KEYCFG, OPOS-ADK, and APDRV are included with the software.

Windows 2000 Pre-Installed Model

The exclusive EPSON utility and drivers for using IR-320 are pre-installed in the HDD with the pre-installed Windows 2000 Professional.

Installation Procedure


Windows 2000 Installation
When the power supply is turned on, the installation starts. Enter the product key of the W2K label pasted on the product. You can set up the Network automatically or set it up later.
Windows 2000 Service Pack Installation
Change of Double click settings
Set up this setting every time a new user starts using Windows 2000.
Serial Driver Installation
AC line tool Installation
When using the Battery Unit (OI-R03)
Power button prohibited setting tool Installation
Other software Installation
When using OPOS-ADK, APD (Windows printer drivers) and Unimini, install the software from the Driver CD-ROM for the IR-320.

Formatting the hard disk

The hard disk is composed of one partition of up to 10 GB as a system area. For a hard disk of more than 10 GB, the excess area other than the system area is not yet formatted. This drive can be converted to NTFS using the Convert command. Use the disk administrator when creating a drive in the unused area. The start-up drive has been formatted to the following file system.

- File system: FAT32
- Volume label: Windows 2000

Pre-installed software

- ❑ Microsoft Windows 2000 Professional
- ❑ Microsoft Windows 2000 Service Pack 3
- ❑ Intel Chipset software installation utility
- ❑ Intel Video driver
- ❑ Intel Network driver
- ❑ Analog Devices Sound driver
- ❑ EPSON Touch Panel driver
- ❑ EPSON Logon tool *1
- ❑ EPSON DM-MS Series setup utility *1
- ❑ EPSON Power button prohibited setting tool *1
- ❑ EPSON AC line tool *1
- ❑ EPSON Serial driver *1
- ❑ EPSON CD-ROM driver for DOS*2

Note:

**1: These are not installed during the auto installation procedure.*

**2: When using the OS Recovery.*

Version of the Pre-installation HDD

To confirm the version of the HDD, see the file HDVER.TAG in the root directory of the boot drive. This file is text-formatted and can be read using Notepad or a similar text editor. The file HDVER.TAG has the following contents:

```
[HD Information]
MODEL=IR-320
OS=Windows2000
LANG=Dutch/English/French/German/Italian/Portuguese/Spanish
VER=1.**.*
```

Directory Configuration

The root directory of the HDD is structured as follows.

```
|--- Backup
|       |--- Keycfg             :       Backup of MSR Utility
|       |     |--- Win          :
|       |     |      |--- Disk1 :       Backup of MSR Utility for Windows
|       |     |--- DOS          :       Backup of MSR Utility for MS-DOS
|       |--- Chipset            :       Chipset driver backup folder
|       |--- Dissw              :       Power button prohibited setting tool backup folder
|       |--- Epsbatt            :       AC line tool backup folder
|       |--- Epserial           :       EPSON Serial driver backup folder
|       |--- Logon              :       Logon tool backup folder
|       |--- Network            :       Network driver backup folder
|       |--- Sound              :       Sound driver backup folder
|       |--- Touch              :       Touch Panel driver backup folder
|       |--- Video              :       Video driver backup folder
|       |--- Recovery           :       Recovery folder
|       |     |--- Bootfd       :
|       |     |      |--- Data  :
|--- Bootdisk                   :       Folder for files used to create an ordinary boot floppy disk
|--- Documents and Settings:            Folder for saving text and settings.
|--- I386                       :       Setup file folder
|--- Mui                        :
|--- Program Files              :       Windows utility folders
|--- WINNT                      :       Windows folders
```

The I386 directory may be deleted after the addition of the Windows 2000 application and the addition / change of the driver.

The directories under the Backup directory are the backups for drivers and utilities. Each of these directories can be backed up into CD-R or other media. After being backed up, these directories may be deleted.

If you install the optional CD-R/RW drive, you need to get software for CD-R/RW writing. The software is not supplied by EPSON.

Windows 2000 Setup Procedure

⚠ CAUTION

Be sure to keep the keyboard connected. If necessary, start the setup procedure after connecting the mouse.
The keyboard is necessary for inputting the product ID and password. The keyboard is also necessary for user verification during logon to Windows 2000, even if the touch panel is in a usable state.

Windows 2000 is set up by using the following procedure.

1. Turn on the system, and boot the system from the pre-installation HDD. Windows 2000 setup will start.

2. The License Agreement screen is displayed. Check the contents, then select [I accept this agreement] and click **Next**.

3. The Regional Settings screen is displayed. Make sure the system locale, user locales and keyboard layout are set to United States, then click **Next**.

4. The Personalize Your Software screen is displayed. Input the Name and Organization, then click **Next**.

5. The Your Product Key screen is displayed. Input the product key entered on the cover of the First Step Guide in the COA (Certificate of Authenticity) package included with this product; then click **Next**.

6. The Computer Name and Administrator Password screen is displayed. Input the Computer Name and Administrator Password, then click **Next**.

7. The Date and Time Settings screen is displayed. Set the date and time, then click **Next**.

8. The Networking Settings screen is displayed. Select either Typical Settings or Custom Settings according to the environment, then click **Next**. The Networking Components screen is displayed if Custom Settings is selected. Set the settings in accordance with the environment, then click **Next**.

9. The Workgroup or Computer Domain screen is displayed. Set the settings in accordance with the environment, then click **Next**.

10. The system will start automatically when **Restart** is clicked.

11. The Network Identification Wizard starts. Click **Next**.

12. The Users of this Computer screen is displayed. Set the settings in accordance with the environment, then click **Next**.

13. The Completing the Network Identification Wizard screen is displayed. Click **Finish**.

14. Windows 2000 starts and the setup is completed.

⚠ CAUTION:

The setup is executed with the SVGA display.

Setting the recognition range of the double click

When connecting the LCD with the touch panel and making a setup, the touch panel driver is automatically installed and the double click setting registry key of Windows is modified. But when a new user first logs on, the default value of Windows is applied to the value of the registry key, so the registry key must be modified for individual users.

When you set up Windows 2000 and create a new user, you have to modify the registry key for individual users by following the steps below.

✎ ***Note***
The administrator modifies the registry key.

Method

Select Programs - Epson Touch Panel Tool - Touch Panel Configuration Tool from the Start menu. Click **OK**. (There is no need to do any other operation.)

Various Configurations (Windows 2000)

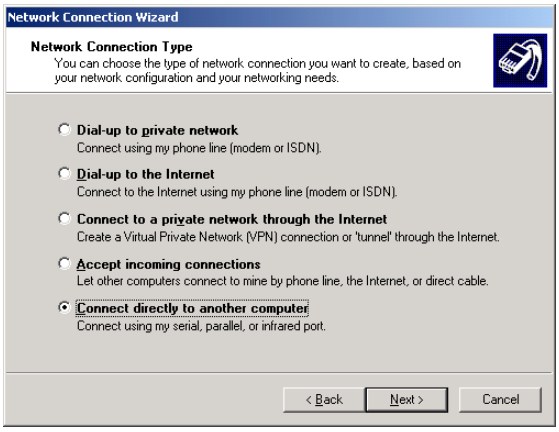
Various configurations are executed during the setup procedure, and the keyboard and the mouse are automatically set. To change their configurations, use the control panel.

Setting the Network

A dialog box prompting the user to manually install the network is displayed. Set the network settings by the following procedure.

1. Open the Control Panel, then select Network and Dial-up Connections.
2. The Network and Dial-up Connections dialog box is displayed. Select Make New Connection.
3. The Network Connection Wizard starts. If the location information setting has not been completed by this time, the Location Information dialog box is displayed at this time. Set the settings in accordance with the environment, then click **OK**. If all the location information has been set, this dialog box is not displayed. Proceed to item (5) and set the settings in subsequent steps.
4. The Telephone and Modem Option dialog box is displayed. Select the location set in the previous item, then click **OK**.
5. The Network Connection Wizard opening dialog box is displayed. Click **Next**.

6. The Network Connection Type dialog box is displayed. Set the settings in accordance with the environment; then click **Next**. The dialog displayed by the following procedure is different depending on the type of the set network connection. The explanation here is for the case in which Connect directly to another computer is selected. Setting of other network connections can be accomplished in the same way by following instructions of the Network Connection Wizard.


Network Connection Wizard
Network Connection Type
You can choose the type of network connection you want to create, based on your network configuration and your networking needs.
Dial-up to private network
Connect using my phone line (modem or ISDN).
Dial-up to the Internet
Connect to the Internet using my phone line (modem or ISDN).
Connect to a private network through the Internet
Create a Virtual Private Network (VPN) connection or 'tunnel' through the Internet.
Accept incoming connections
Let other computers connect to mine by phone line, the Internet, or direct cable.
Connect directly to another computer
Connect using my serial, parallel, or infrared port.
< Back
Next >
Cancel

7. The Host or Guest dialog box is displayed. Set the settings in accordance with the environment, then click **Next**. The explanation here is for the case in which Host is selected.

8. The Connection Device dialog box is displayed. Set the settings in accordance with the environment, then click **Next**.

9. The Allowed Users dialog box is displayed. Set the settings in accordance with the environment, then click **Next**.

10. The Completing the Network Connection Wizard dialog box is displayed. Input the name to be given to the current settings, then click **Finish**.

Network Connection Wizard
Completing the Network Connection Wizard
The connection will be named:
Incoming Connections
To create this connection and save it in the Network and Dial-up Connections folder, click Finish.
To edit this connection in the Network and Dial-up Connections folder, select it, click File, and then click Properties.
< Back
Finish
Cancel

11. The newly set connection is added to the Network and Dial-up Connection dialog box. To change the connection method, right click on the newly added icon, and select Properties. The settings can then be changed.

EPSON Serial Driver

When the serial port is transmitting with Windows 2000, this Driver prevents the OS from shifting to the Standby mode, and the operation of the full-on mode can be continued.

When installing the service pack, install the serial driver again.

Install

Note
Be sure an administrator installs the serial driver.

Install the serial driver using the following procedure.

1. Execute C:\backup\epserial\Epserial.exe.
2. Start serial driver Setup. The welcome screen is displayed. Click **Next**.
3. After installation is completed, the InstallShield Wizard Complete dialog box is displayed. Select Yes, I want to restart my computer now, then click **Finish** to restart the system.

Uninstall

Uninstall the serial driver using the following procedure.

1. Open the Control Panel and select Add/Remove Programs.
2. The Add/Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when EPSON Serial Driver is selected. Click Change/Remove.
3. The Confirm File Deletion dialog box is displayed. Click **Yes**.
4. The Remove Programs From Your Computer dialog box is displayed. The uninstall process then begins.
5. A dialog box is displayed when uninstall is completed. Click **OK**.

AC line tool

This tool is the utility to monitor the switching of the power of the system over to the battery from the AC Line with Windows 2000 when the battery unit (OI-R03) option is attached. For details, see page 4-67.

Power button prohibited setting tool for windows 2000

The Power button prohibited setting tool is the tool setting the registry to prohibit the shift to the shutdown and the stand-by mode even if the front power switch is pressed. It can prevent the shutdown of the system even if the front power switch is pressed by mistake.

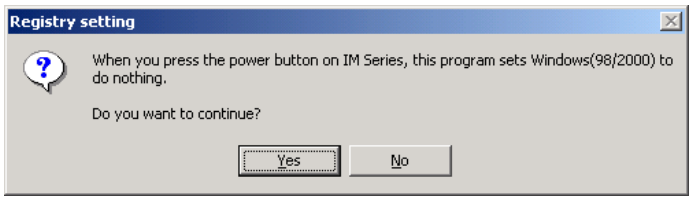
Note for using

When Power Options of Windows are updated, the setting is cleared, so always set after updating the Power Options.

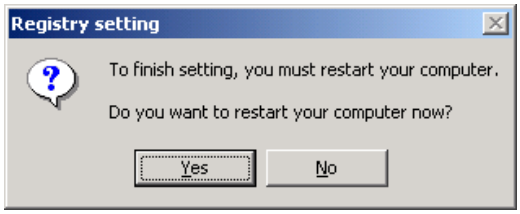
How to use

1. Execute C:\Backup\Dissw\DISSW.EXE.

2. The following message is displayed. Click Yes. If No is clicked, processing stops and you return to Windows.


Registry setting
When you press the power button on IM Series, this program sets Windows(98/2000) to do nothing.
Do you want to continue?
Yes
No

3. When setting the registry, the following message is displayed. Click Yes, so Windows is restarted and the setting becomes valid.
   If you click No, the setting returns to Windows without becoming valid. In this case, if you then restart Windows, the setting becomes valid

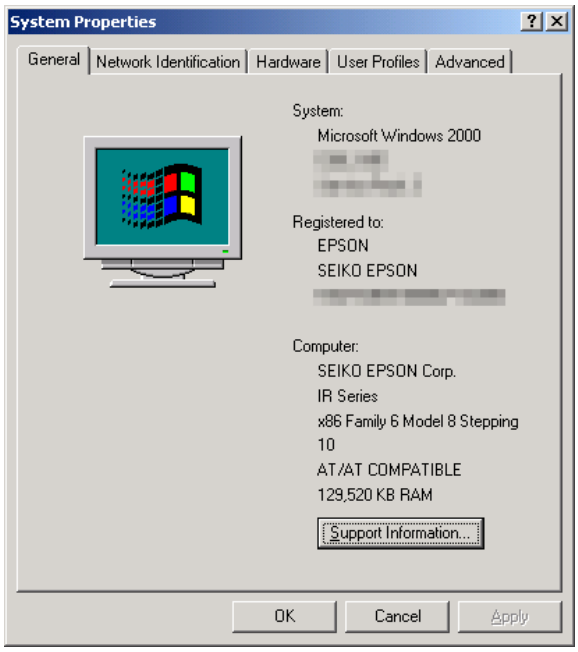


Adding Windows 2000 Applications

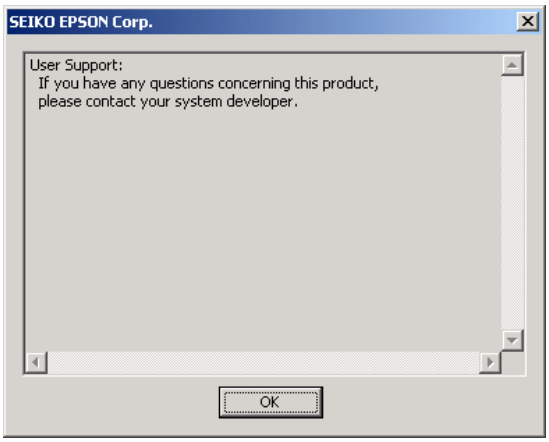
When adding any Windows 2000 application, specify the C:\I386 directory. In this directory, \I386 has been backed up from the Windows 2000 CD-ROM.

Support Information

Right click the My Computer icon and select Properties from the pull down menu. Then the System properties are displayed.



Click the **Support information** button, so the information on the contact is displayed



Recovering the OS

Preparing confirmation

Confirm the following before OS recovery.

- ❑ When the CD-ROM drive (OI-R06) is connected, OS recovery can be done just as it is starting up from the CD-ROM drive. When using the other drive, the start-up floppy disk is necessary. Refer to the README-e.TXT file and create a start-up floppy disk.
- ❑ "The Windows 2000 CD-ROM " included with the product is used for recovering Windows 2000.
- ❑ Use the HDD included in the shipment or an unused HDD for OS recovery.
- ❑ The external keyboard is necessary for the recovery.
- ❑ After restoring the OS, a product ID must be entered at the setup of Windows. The product ID is on the first step guide cover in the COA (Certificate of Authenticity) package attached to the system.
- ❑ Set the BIOS setting to "Optimized Defaults." When using the BIOS setting customized, note down the BIOS setting value beforehand. After the recovery is done, you must reset it to that value.
- ❑ OS recovery erases all contents of the HDD. Back up the necessary data to a floppy disk or other media.

Recovering method

Follow the steps below to carry out OS recovery.

1. Turn power to the IR-320 off. Turn the main power switch off. Unplug the power cable.
2. If a CD-ROM drive is not already installed, attach a drive to the IR-320.
3. Attach to the IR-320 the HDD unit you'd like to recover.
4. Connect the external keyboard to the IR-320 keyboard/mouse connector.
5. Start up the BIOS setup utility and select the Boot Sequence option from the BIOS features setup menu. (Refer to Chapter 4 for the operating procedure of the BIOS setup utility.)
6. Select the First Boot Device from the Advanced BIOS Features setup menu, and set the First Boot Device to “CDROM.”
7. Insert the “Windows 2000 CD-ROM 1" into the CD-ROM drive.
8. On the BIOS setup utility main menu, select “Save & Exit Setup” and press the Enter key. The following dialog box appears.

   SAVE to CMOS and EXIT (Y/N)?

9. Press [Y] and [Enter]. The system will restart and after a short time, the License Agreement will appear.

   ```
   Strike a key when ready ... _
   ```

10. When you press any key, part of the License Agreement will appear. Repeat the same procedure until you get to the end of the License Agreement. The following message will appear.

    ```
    Recovery Start from CD-ROM.
    Please type
    X: [enter]
    start [enter]
    A:\>_
    ```

11. Enter the following from the command prompt.

    A:\> x: [Enter]
    X:\> start [Enter]

12. The following message will appear. Select and enter the partition size of the HDD.

    ```
    Please select the system partition size.
      1: 10GB (Default size)
      F: Full size of HD.
    Please push a key of 1 or F._
    ```

13. Select the range to format as the system area on the hard disk. Press the "1" key to select 10GB or press the "F" key to select the full size. After that, the OS recovery starts.

14. The image data exchange dialog will appear. Insert the Windows 2000 CD-ROM 2 in the CD-ROM drive; then press the OK button.

15. When the prompt below is displayed on the screen, OS recovery work is complete.

    ```
    X:\RESTORE>_
    ```

16. Eject the "Windows 2000 CD-ROM" from the CD-ROM drive.

17. Reboot and start the BIOS setup utility.

18. Return the First Boot Device in the Advanced BIOS Features setup menu to the "Floppy."

19. On the main menu, select "Save & Exit Setup" and press Enter. The following dialog box appears.

    ```
    SAVE to CMOS and EXIT (Y/N)?
    ```

20. Press [Y] and [Enter]. The system will restart.

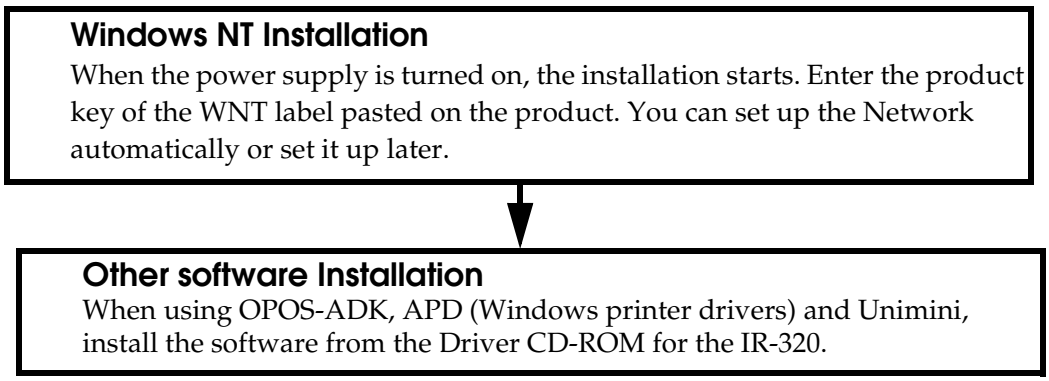
Limitation

- ❑ Recovery cannot be performed starting from a hard disk. You must perform recovery from a CD-ROM.

Windows NT Pre-Installed Model

The exclusive EPSON utility and drivers for using IR-320 are pre-installed in the HDD with the pre-installed Windows NT Workstation 4.0.

Installation Procedure


Windows NT Installation
When the power supply is turned on, the installation starts. Enter the product key of the WNT label pasted on the product. You can set up the Network automatically or set it up later.
Other software Installation
When using OPOS-ADK, APD (Windows printer drivers) and Unimini, install the software from the Driver CD-ROM for the IR-320.

Formatting the hard disk

The hard disk is composed of one partition of up to 4 GB as a system area. For a hard disk of more than 4 GB, the excess area other than the system area, is not yet formatted. The start-up drive has been formatted to the following file system.

- File system: NTFS
- Volume label: NTWS40

Pre-installed software

- ❑ Microsoft Windows NT Workstation 4.0
- ❑ Microsoft Windows NT Service Pack 6
- ❑ Microsoft Internet Explorer 6.00 Service Pack 1
- ❑ Microsoft Data Access Components 2.0 Service Pack 1
- ❑ Intel Video driver
- ❑ Intel Network driver
- ❑ Analog Devices Sound driver
- ❑ EPSON Touch Panel driver
- ❑ EPSON Logon tool *1
- ❑ EPSON DM-MS Series setup utility *1
- ❑ EPSON CD-ROM driver for DOS *2

Note:
**1: These are not installed during the auto installation procedure.*

**2: When using the OS Recovery.*

Version of the Pre-installation HDD

To confirm the version of the HDD, see the file HDVER.TAG in the root directory of the boot drive. This file is text-formatted and can be read using Notepad or a similar text editor. The file HDVER.TAG has the following contents:

```
[HD Information]

MODEL=IM-320

OS=WindowsNT40

LANG=Dutch/English/French/German/Italian/Portuguese/Spanish

VER=1.**.*
```

Directory Configuration

The root directory of the HDD is structured as follows.

```
|--- Backup
|       |--- Keycfg             :     Backup of MSR Utility
|       |     |--- Win          :
|       |     |      |--- Disk1 :     Backup of MSR Utility for Windows
|       |     |--- DOS          :     Backup of MSR Utility for MS-DOS
|       |--- Logon              :     Logon tool backup folder
|       |--- Network            :     Network driver backup folder
|       |--- Sound              :     Sound driver backup folder
|       |--- Touch              :     Touch Panel driver backup folder
|       |--- Video              :     Video driver backup folder
|       |--- Ie6sp1             :     Internet Explorer 6.0 backup folder
|       |--- Mdac               :     MDAC2.0
|       |--- Wntsp6             :     Service Pack 6 backup folder
|       |--- Recovery           :     Recovery folder
|            |--- Bootfd        :
|                   |--- Data   :
|--- Drvlib                     :     Driver groups
|--- I386                       :     Setup file folder
|--- Temp                       :
|--- Program Files              :     Windows utility folders
|--- WINNT                      :     Windows folders
```

The I386 and Drvlib directory may be deleted after the addition of the Windows NT application and the addition / change of the driver.

The directories under the Backup directory are the backups for drivers and utilities. Each of these directories can be backed up into CD-R or other media. After being backed up, these directories may be deleted.

If you install the optional CD-R/RW drive, you need to get software for CD-R/RW writing. The software is not supplied by EPSON.

Windows NT Setup Procedure

⚠ CAUTION

Because the touch panel is not operative during the setup procedure, be sure to keep the keyboard connected. If necessary, start the setup procedure after connecting the mouse, and the branch cable. The keyboard is necessary for inputting the product ID. Even when the touch panel is operative, the keyboard is also necessary for starting up the Logon process and for authorizing the user through the key operation of ***CTRL+ALT+DEL****.*

Windows NT is set up by using the following procedure.

1. Turn on the system, and boot the system from the pre-installation HDD. Windows NT setup will start.
2. The Windows NT Setup dialog box is displayed. Click **Next**.
3. The License Agreement dialog box is displayed. Check the contents, then select [I accept this agreement] and click **Next**.
4. The Name and Organization dialog box is displayed. Input the Name and Organization, then click **Next**.
5. The Registration dialog box is displayed. Input the product key entered on the cover of the First Step Guide in the COA (Certificate of Authenticity) package included with this product; then click **Next**.
6. The Computer Name dialog box is displayed. Input the Computer Name, then click **Next**.
7. The Administrator Account dialog box is displayed. Input the Password and Confirm Password, then click **Next**.
8. The Windows NT Setup dialog box is displayed. Click **Finish**.
9. The system will restart automatically.
10. Windows NT starts and the setup is completed.

⚠ CAUTION:

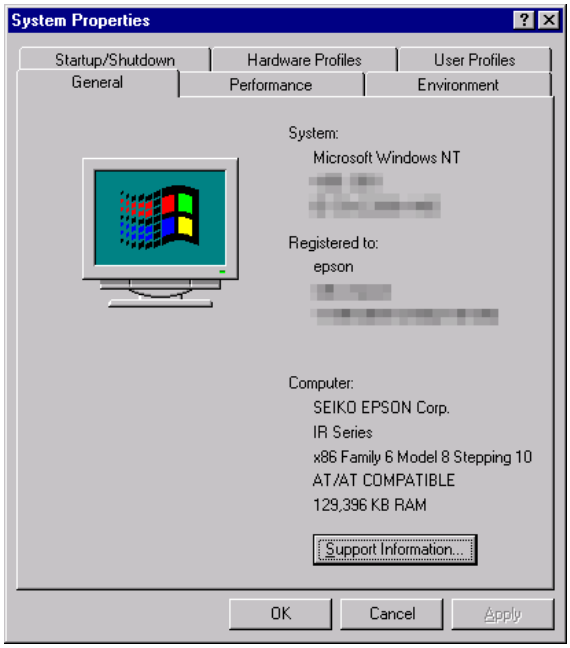
The setup is executed with the SVGA display.

Adding the Windows NT Applications

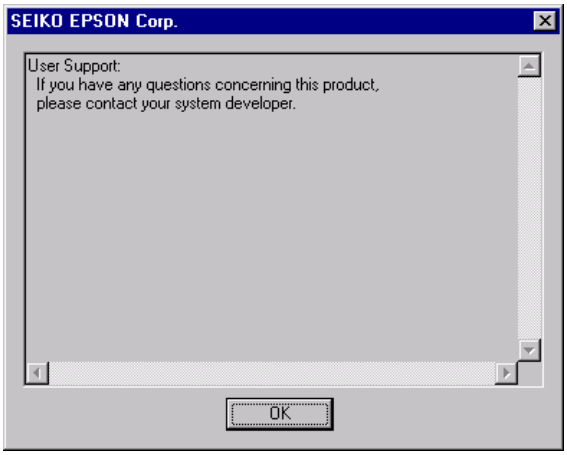
When adding any Windows NT application, specify the C:\I386 directory. In this directory, \I386 has been backed up from the Windows NT CD-ROM.

Support Information

Right click the My Computer icon and select Properties from the pull down menu. Then the System properties are displayed.



Click the **Support information** button, so the information on the contact is displayed



Recovering the OS

Preparing recovery media

- ❑ Preparing a start-up disk

  1. Start the command prompt.
  2. Go to the C:\backup\recovery\bootfd directory.
  3. Execute MKDISK.bat.
  4. Insert a floppy disk in the FDD.
  5. Press **Enter** to start formatting.
  6. A message asking whether you are going to format another floppy disk is displayed. Press **N** and **Enter**. Then the necessary files are copied onto the floppy disk.
  7. A message that the copying is over is displayed. Then exit command prompt.

- ❑ Saving the HD image data

  Save all data under the C:\backup\recovery\data directory onto another medium or drive.

  Example:

  1. Connect the IR-320 in network to a PC that can write data onto CD-Rs.
  2. Save all data under the C:\backup\recovery\data directory of the IR-320 onto the PC.
  3. Write all data saved in step 2 onto a CD-R.
  4. After saving the data, the directory under the C:\backup\recovery directory may be deleted.

- ❑ Backing up each driver

  Each directory under the C:\backup directory is the backup of each driver, which can be backed up through individual saving.

Recovering method

- ❑ Editing the start-up disk

  Edit CONFIG.SYS and AUTOEXE.BAT created in "Preparing a Recovery Medium" to the device on which the image data has been saved.

- ❑ Recovering

  1. Connect the medium or drive onto which the data has been saved in "Preparing a Recovery Medium" to the IR-320.
  2. Start the system by using the start-up floppy disk created in "Preparing a Recovery Medium."

3. Enter the following from the command prompt. (x: Drive with the image file) After that, the OS recovery starts.

   ```
   A:\>
   x: [Enter]
   start [Enter]
   ```

4. Following the title "EasyRestore," the EPSON Logo Startup screen is displayed. Select **Continue**.

5. After the OS is recovered, set up the OS.

6. Return the printer driver for OPOS and Windows saved in "Preparing a Recovery Medium."

Restrictions

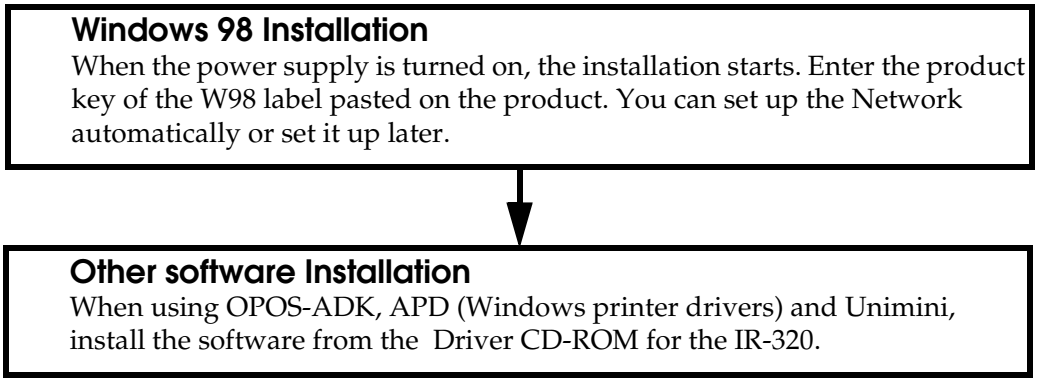
- ❑ The size of the image data to be saved amounts to 500–600 MB. Saving this much data requires a large-capacity device, such as a CD-R, MO, or server.
- ❑ Because of restrictions by EasyRestore, the HD image data file (HDIMG003.PQI) cannot be divided.
- ❑ Because EasyRestore runs only on MS-DOS, it is a requirement of "Saving of HD Image Data" that MS-DOS can recognize the saving destination device.
- ❑ When startup is initiated from the built-in hard disk of the IR-320, recovery is impossible.

Windows 98 Pre-Installed Model

The HDD pre-installed with Windows 98 Second Edition is also pre-installed with the EPSON utility software and drivers dedicated to the IR-320.

Languages are English, French, German, Spanish, and Italian.

Installation Procedure


Windows 98 Installation
When the power supply is turned on, the installation starts. Enter the product key of the W98 label pasted on the product. You can set up the Network automatically or set it up later.
Other software Installation
When using OPOS-ADK, APD (Windows printer drivers) and Unimini, install the software from the Driver CD-ROM for the IR-320.

Formatting the hard disk

The hard disk is composed of one partition of up to 10 GB as a system area. For a hard disk of more than 10 GB, the excess area other than the system area is not yet formatted. Use the FDISK and FORMAT command when creating a drive in the unused area. The start-up drive has been formatted to the following file system.

- File system: FAT32
- Volume label: Windows 98

Pre-installed software

- ❑ Microsoft Windows 98 Second Edition
- ❑ Intel Chipset software installation utility
- ❑ Intel Video driver
- ❑ Intel Network driver
- ❑ Analog Devices Sound driver
- ❑ EPSON Touch Panel Driver
- ❑ EPSON DM-MS Series setup utility *1
- ❑ EPSON CD-ROM driver *2
- ❑ EPSON Logon tool *1

- ❑ EPSON Power button prohibited setting tool *1
- ❑ EPSON AC line tool *1

Note:
1: These are not installed during the auto installation procedure.

2: The driver to use for OS recovery for DOS.

Version of the pre-installation HDD

To confirm the version of the HDD, see HDVER.TAG in the start-up drive root. This file is text-formatted and can be read using Notepad or a similar text editor. The contents of HDVER.TAG are as follows:

```
[HD Information]
MODEL=IR-320
OS= Windows98
LANG=English
VER=1.**.*
```

Directory Configuration

The root directory of the HDD is structured as follows:

```
|--- Program Files          :   Application for the standard installation of Windows 98
|--- Backup                 :
|      |--- Keycfg          :   Backup of MSR Utility
|      |     |--- Win       :
|      |     |     |--- Disk1 :  Backup of MSR Utility for Windows
|      |     |--- DOS       :   Backup of MSR Utility for MS-DOS
|      |--- Chipset         :   Backup of Chipset driver
|      |--- Dissw           :   Power button prohibited setting tool backup folder
|      |--- Epsbatt         :   AC line tool backup folder
|      |--- Logon           :   Backup of Logon tool
|      |--- Network         :   Backup of Network Driver
|      |--- Sound           :   Backup of Sound Driver
|      |--- Touch           :   Backup of Touch Panel Driver
|      |--- Video           :   Backup of Display Driver
|      |--- Recovery        :
|           |--- Data       :   Backup of HD (for creating Recovery Media)
|           |     |--- Restore :  EasyRestore
|           |--- Bootfd     :   Start-up FD
|                 |--- Data  :   Data of Start-up FD
|--- My Documents           :
|--- Windows                :   Windows 98 Second Edition system
```

The directories under the Backup directory are the backups for drivers and utilities. Each of these directories can be backed up onto CD-R or other media. After backup, the directories under the Backup directory may be deleted.

Windows 98 Set-Up Procedure

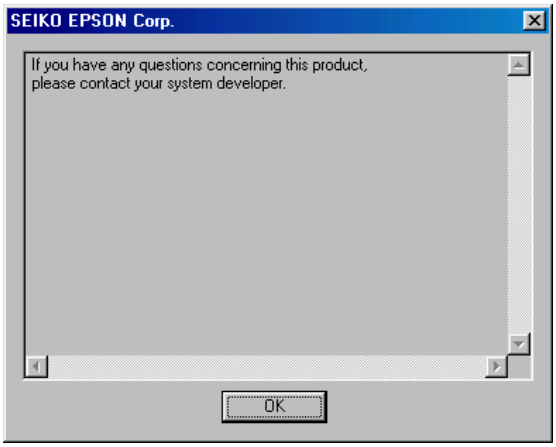
Windows 98 is set up by using the following procedure:

1. Connect the keyboard and mouse to the IR-320.
2. Turn on the PC to start Windows 98 SE.
3. The Enter Network Password dialog box is displayed. Input the password and click **OK**.
4. The Welcome screen is displayed. Input the necessary information and click **Next**.
5. The Windows End User license Agreement is displayed. Read it though and confirm your agreement to the terms. And then select [I accept this agreement] and click **Next** to proceed.
6. The Windows Product Key screen is displayed. Input the 25-digit product key shown on the COA (Certificate of Authenticity). Click **Next** to begin setup. If you enter an incorrect key, a message is displayed indicating that. Select [Re-enter valid product key] and then click **Next** to return to the Windows Protect Key screen and input the product key again.
7. When setup is completed, the Congratulations screen is displayed. Click **Finish**.
8. The system asks you to set the Date and Time properties. Check the properties displayed, and change them as needed. Click **Close** to confirm the settings.
9. The system setting is automatically updated, the system is rebooted, and the Windows 98 SE desktop appears.

Support Information

Select the My Computer icon on the desktop, click the right mouse button and select Properties from the pull down menu.

Click the **Support Information** button; the information on the contact is displayed.



Recovering the OS

Preparing recovery media

- ❑ Preparing a start-up disk

  1. Start the MS-DOS Prompt.
  2. Go to the C:\backup\recovery\bootfd directory.
  3. Execute MKDISK.bat.
  4. Insert a floppy disk in the FDD.
  5. Press **Enter** to start formatting.
  6. A message asking whether you are going to format another floppy disk is displayed. Press **N** and **Enter**. Then the necessary files are copied onto the floppy disk.
  7. A message that the copying is over is displayed. Then exit MS-DOS Prompt.

- ❑ Saving the HD image data

  Save all data under the C:\backup\recovery\data directory onto another medium or drive.

  Example:

  1. Connect the IR-320 in network to a PC that can write data onto CD-Rs.
  2. Save all data under the C:\backup\recovery\data directory of the IR-320 onto the PC.
  3. Write all data saved in step 2 onto a CD-R.
  4. After saving the data, the directory under the C:\backup\recovery directory may be deleted.

- ❑ Backing up each driver

  Each directory under the C:\backup directory is the backup of each driver, which can be backed up through individual saving.

Recovering method

- ❑ Editing the start-up disk

  Edit CONFIG.SYS and AUTOEXE.BAT created in "Preparing a Recovery Medium" to the device on which the image data has been saved.

- ❑ Recovering

  1. Connect the medium or drive onto which the data has been saved in "Preparing a Recovery Medium" to the IR-320.
  2. Start the system by using the start-up floppy disk created in "Preparing a Recovery Medium."

3. Enter the following from the command prompt. (x: Drive with the image file) After that, the OS recovery starts.

   ```
   A:\>
   x: [Enter]
   start [Enter]
   ```

4. The following message appears. Select and enter the partition size of the HDD.

   ```
   Please select the system partition size.
     1: 10GB (Default size)
     F: Full size of HD.
   Please push a key of 1 or F._
   ```

5. Select the range to format as the system area on the hard disk. Press the "1" key to select 10GB or press the "F" key to select the full size. After that, the OS recovery starts.

6. Following the title "EasyRestore," the EPSON Logo Startup screen is displayed. Select **Continue**.

7. After the OS is recovered, set up the OS.

8. Return the printer driver for OPOS and Windows saved in "Preparing a Recovery Medium."

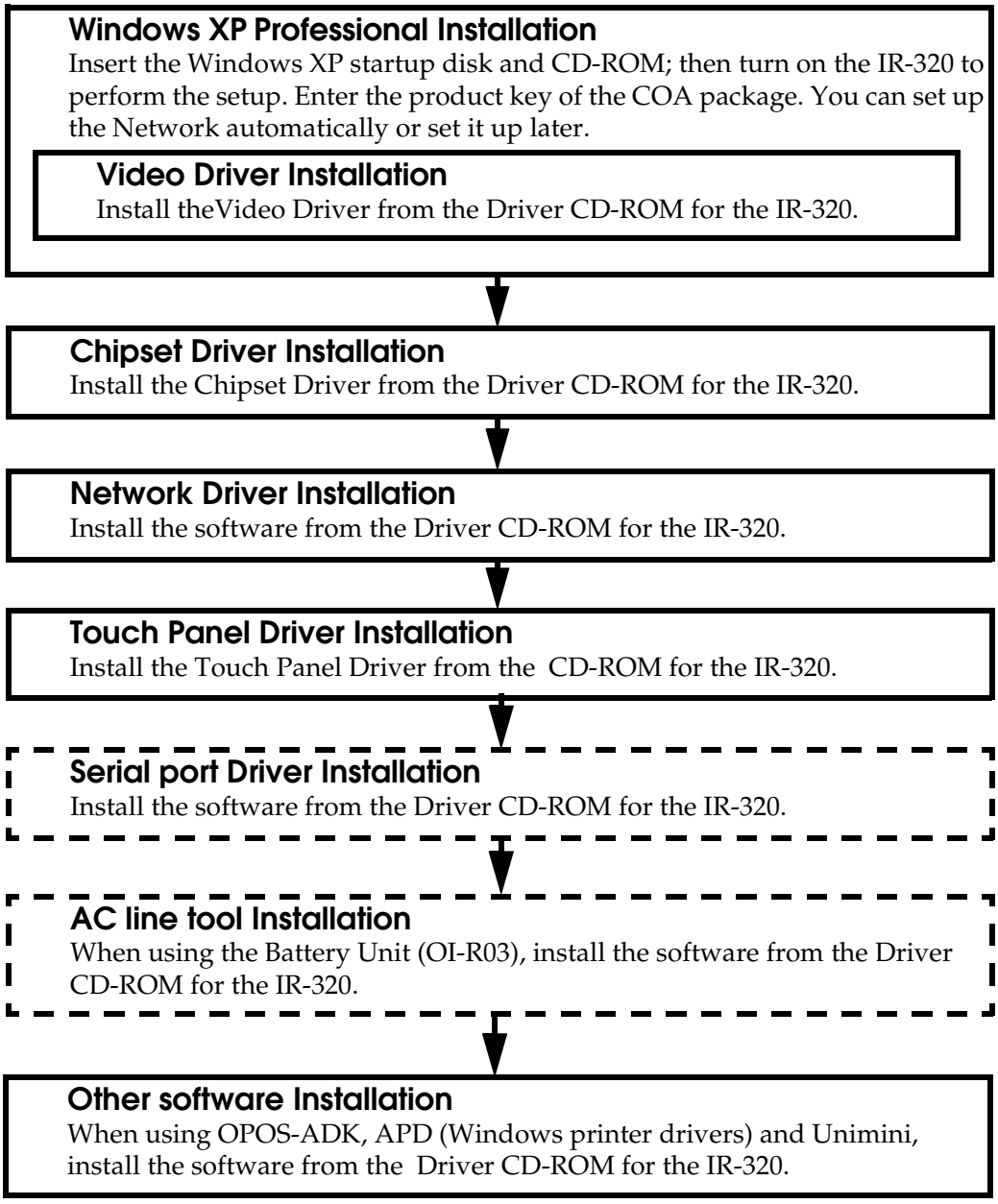
Restrictions

- ❏ The size of the image data to be saved amounts to 500–600 MB. Saving this much data requires a large-capacity device, such as a CD-R, MO, or server.
- ❏ Because of restrictions of EasyRestore, the HD image data file (HDIMG003.PQI) cannot be divided.
- ❏ Because EasyRestore runs only on MS-DOS, it is a requirement of "Saving of HD Image Data" that MS-DOS can recognize the saving destination device.
- ❏ When startup is initiated from the built-in hard disk of the IR-320, recovery is impossible.

Installation for Windows XP Professional Locally Procured Edition

Installation Procedure

If you install Windows XP Professional locally procured edition, follow the steps below.


Windows XP Professional Installation
Insert the Windows XP startup disk and CD-ROM; then turn on the IR-320 to perform the setup. Enter the product key of the COA package. You can set up the Network automatically or set it up later.
Video Driver Installation
Install theVideo Driver from the Driver CD-ROM for the IR-320.
Chipset Driver Installation
Install the Chipset Driver from the Driver CD-ROM for the IR-320.
Network Driver Installation
Install the software from the Driver CD-ROM for the IR-320.
Touch Panel Driver Installation
Install the Touch Panel Driver from the CD-ROM for the IR-320.
Serial port Driver Installation
Install the software from the Driver CD-ROM for the IR-320.
AC line tool Installation
When using the Battery Unit (OI-R03), install the software from the Driver CD-ROM for the IR-320.
Other software Installation
When using OPOS-ADK, APD (Windows printer drivers) and Unimini, install the software from the Driver CD-ROM for the IR-320.

Setup procedure

Windows XP is set up by using the following procedure:

1. Connect the keyboard and mouse to the IR-320.
2. Insert the CD-ROM of Windows XP in the CD-ROM drive and boot up the system.
3. The [Welcome to Setup] screen is displayed. Press [Enter].
4. The [END-USER LICENSE AGREEMENT] screen is displayed. Read it through and confirm contents. If you agree with them, press the [F8] key.
5. Select the partition to set up Windows, and press [Enter]. When an unformatted partition is selected, a confirmation screen is displayed. Execute the format according to the instructions on the screen. After that, copying of the file starts.
6. Reboot the system again according to the instructions on the screen.

Video Driver Installation Method

7. Start COMMAND PROMPT by pressing [Shift + F10] in the "Locale Setting."
8. Change the CD-ROM.
   Eject the CD-ROM of Windows XP, and Insert the Driver CD-ROM of IR-320.
9. Execute WinXP\Video\WIN2K_XPE67.EXE in the Driver CD-ROM of IR-320.
10. The Release note is displayed. Click **Next**.
11. The Setup Wizard starts and the Welcome dialog box is displayed. Click **Next**.
12. The License Agreement dialog box is displayed. Click **Yes**.
13. Installing is completed and the reboot dialog box is displayed. Confirm that [No, I will restart my computer later] is selected, and click **Finish**.
14. Finish the COMMAND PROMPT using ["Exit" + Enter].
15. Change the CD-ROM.
    Eject the Driver CD-ROM of IR-320.
    Insert the CD-ROM of Windows XP.

Video Driver Install End

16. The [Regional and Language Options] dialog box is displayed. Confirm the setting contents and click **Next**.
17. The [Personalize Your Software] dialog box is displayed. Input your name and your organization, and then click **Next**.
18. The [Your Product key] dialog box is displayed. Input the 25-digit product key shown on the COA (Certificate of Authenticity) and click **Next**.
19. The [Computer Name and Administrator Password] dialog box is displayed. Input the necessary information and click **Next**.

20. The [Date and Time Settings] dialog box is displayed. Confirm the setting and click **Next**.

21. The system reboots automatically.

22. The [Welcome to Microsoft Windows] dialog box is displayed. Click **Next**.

23. The [Who will use this computer ?] dialog box is displayed. Input the user name according to the instruction on the screen.

24. The [Thank you!] dialog box is displayed. Click **Finish**; Windows XP will start.

⚠ CAUTION:

Setup is executed with the VGA display.

Installing the Intel Chipset Diver

Note

The Chipset Driver must be installed before you install other drivers

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start WinXP\Chipset\infinst_enu.EXE.

2. The Setup Wizard starts and the Welcome screen is displayed. Click **Next**.

3. The License Agreement screen is displayed. Click **Yes**.

4. The Readme Information dialog box is displayed. Click **Next**.

5. Complete dialog box is displayed. Click **Finish**.

Uninstalling the Intel chipset driver

Uninstalling cannot be done.

Installing the Network Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start WinXP\Network\pro2kxpm.exe.

2. The Setup Wizard starts, and the License Agreement dialog box is displayed. Select [I accept the terms in the license agreement] and click **Next**.

3. The Location to Save Files dialog box is displayed. Input the folder and click **Next**. The default setting is C:\IntelPRO.

4. When copying of the file is completed, the Complete dialog box is displayed. Click **Install now**.

5. The Complete dialog box is displayed. Click **Finish**.

Uninstalling the network driver

To uninstall the Network Driver using the following procedure.

1. Open the Control Panel, and select Add or Remove Programs.
2. The Add or Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when Intel(R) PRO Ethernet Adapter and Software is selected. Click Change/Remove.
3. The Intel(R) PRO Adapters and Software Uninstaller dialog box is displayed. Click **OK**.

Installing the Touch Panel Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start WinXP\Touch\EPSTPWDM.EXE.
2. The Setup Wizard starts and the Welcome dialog box is displayed. Click **Next**.
3. The Choose Destination Location dialog box is displayed. Input the folder and click **Next**. The default setting is C:\Program Files\EPSON\TouchPanel.
4. The Hardware Installation dialog box is displayed. Click **Continue Anyway**.
5. The Setup Complete dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

Uninstalling the touch panel driver

Uninstall the Touch Panel Driver using the following procedure.

1. Open the Control Panel, and select Add or Remove Programs.
2. The Add or Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when EPSON Touch Panel Driver is selected. Click Change/Remove.
3. The Confirm File Deletion dialog box is displayed. Click **Yes**.
4. The reboot dialog box is displayed. Click **OK**.
5. Uninstalling is completed and the dialog box is displayed. Click **OK**.

Installing the Serial Port Driver

When the serial port is transmitting with Windows XP, this Driver prevents the OS from shifting to the Standby mode and the operation of the full-on mode is continued.

Note

Be sure an administrator installs the serial driver.

Install the serial port driver using the following procedure.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start WinXP\Epserial\EPSERIAL.EXE.

2. Start serial driver Setup. The welcome screen is displayed. Click **Next**.

3. After installation is completed, the InstallShield Wizard Complete dialog box is displayed. Select Yes, I want to restart my computer now, then click **Finish** to restart the system.

Uninstalling the serial port driver

Uninstall the serial port driver using the following procedure.

1. Open the Control Panel, and select Add or Remove Programs.

2. The Add or Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when EPSON Serial Driver is selected. Click Change/Remove.

3. The Confirm File Deletion dialog box is displayed. Click **OK**.

Installing the AC line tool

This tool is the utility to monitor the switching of the power of the system over to the battery from the AC Line with Windows 2000 when the battery unit (OI-R03) option is attached. For details, see page 4-67.

Install the AC Line tool using the following procedure.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start WinXP\Epsbatt\EPSBATT.EXE.

2. The Welcome dialog box is displayed. Click **Next**.

3. The Complete dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

Uninstalling the AC line tool

Uninstall the AC Line tool using the following procedure.

1. Open the Control Panel, and select Add or Remove Programs.

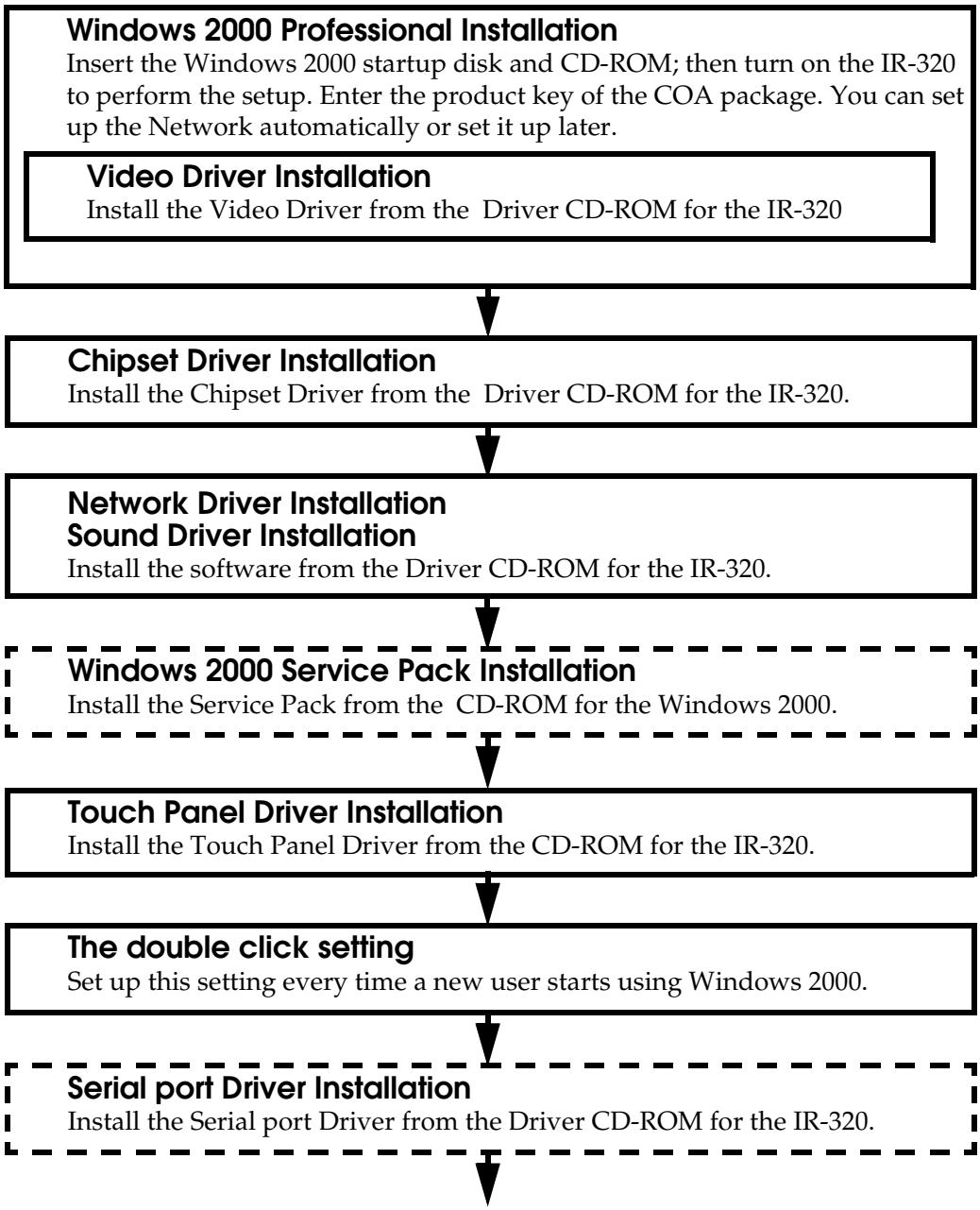
2. The Add or Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when EPSON AC Line watching is selected. Click Change/Remove.

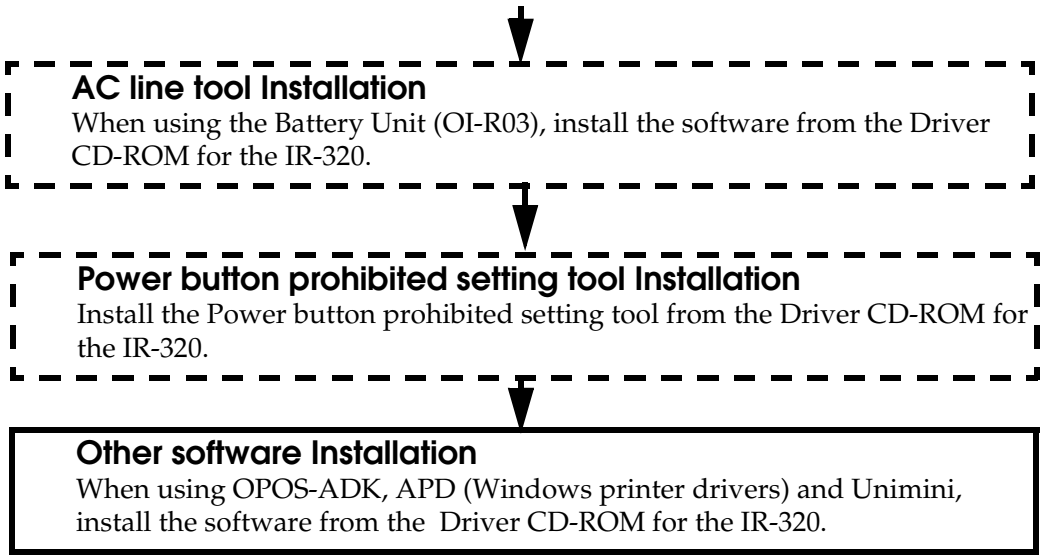
3. The Confirm File Deletion dialog box is displayed. Click **OK**.

Installation for Windows 2000 Professional Locally Procured Edition

Installation Procedure

If you install Windows 2000 Professional locally procured edition, follow the steps below.


Windows 2000 Professional Installation
Insert the Windows 2000 startup disk and CD-ROM; then turn on the IR-320 to perform the setup. Enter the product key of the COA package. You can set up the Network automatically or set it up later.
Video Driver Installation
Install the Video Driver from the Driver CD-ROM for the IR-320
Chipset Driver Installation
Install the Chipset Driver from the Driver CD-ROM for the IR-320.
Network Driver Installation
Sound Driver Installation
Install the software from the Driver CD-ROM for the IR-320.
Windows 2000 Service Pack Installation
Install the Service Pack from the CD-ROM for the Windows 2000.
Touch Panel Driver Installation
Install the Touch Panel Driver from the CD-ROM for the IR-320.
The double click setting
Set up this setting every time a new user starts using Windows 2000.
Serial port Driver Installation
Install the Serial port Driver from the Driver CD-ROM for the IR-320.


AC line tool Installation
When using the Battery Unit (OI-R03), install the software from the Driver CD-ROM for the IR-320.
Power button prohibited setting tool Installation
Install the Power button prohibited setting tool from the Driver CD-ROM for the IR-320.
Other software Installation
When using OPOS-ADK, APD (Windows printer drivers) and Unimini, install the software from the Driver CD-ROM for the IR-320.

Setup procedure

Note

If you set up Windows 2000 on your IR-320, the system stops displaying to the LCD panel at the time of rebooting after all setup has been done. This is because the video driver supplied together with the Windows 2000 CD does not support the internal LCD interface.
To avoid this phenomenon please install Windows 2000 and the video driver by using the following instructions:

Windows 2000 is set up by using the following procedure:

1. Connect the keyboard and mouse to the IR-320.
2. Insert the CD-ROM of Windows 2000 in the CD-ROM drive and boot up the system.
3. The Setup Wizard starts, and the Welcome dialog box is displayed. Press [Enter].
4. The License Agreement is displayed. Read it through and confirm your agreement to the terms. And then press the [F8] key (I agree).
5. Input the necessary information and continue the installation according to the instructions on the screen.
6. When copying of the file is completed, reboot the system again according to the instructions on the screen.

Video Driver Installation Method

1. Start COMMAND PROMPT by pressing [Shift + F10] in the "Locale Setting."
2. Change the CD-ROM.
   Eject the CD-ROM of Windows 2000 and Insert the Driver CD-ROM of IR-320.
3. Execute Win2k\Video\WIN2K_XPE67.EXE in the Driver CD-ROM of IR-320.
4. The Release note is displayed. Click **Next**.
5. The Setup Wizard starts and the Welcome dialog box is displayed. Click **Next**.
6. The License Agreement dialog box is displayed. Click **Yes**.
7. Installing is completed and the reboot dialog box is displayed. Confirm that [No, I will restart my computer later] is selected, and click **Finish**.
8. Finish the COMMAND PROMPT using ["Exit"+ Enter].
9. Change the CD-ROM.
   Eject the Driver CD-ROM of IR-320.
   Insert the CD-ROM of Windows 2000.

Video Driver Install End

1. The Windows 2000 Setup Wizard starts and the Welcome dialog box is displayed. Click **Next**.
2. Input the necessary information and continue the installation according to the instructions on the screen.
3. The Your Product Key screen is displayed. Input the 25-digit product key shown on the COA (Certificate of Authenticity). Click **Next** to begin setup.
4. Input the necessary information and continue the installation according to the instructions on the screen.
5. When the installation is completed, click **Finish** according to the instructions on the screen.
6. After the system is rebooted, the Network Identification wizard is started. Click **Next**.
7. Set the Password according to the instructions on the screen.
8. The installation is completed, and the desktop screen of Windows 2000 is displayed.

⚠ CAUTION:

Setup is executed with the VGA display.

Installing the Intel Chipset Diver

Note

The Chipset Driver must be installed before you install other drivers.

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start Win2K\Chipset\infinst_enu.EXE.
2. The Setup Wizard starts and the Welcome screen is displayed. Click **Next**.
3. The License Agreement screen is displayed. Click **Yes**.
4. The Readme Information dialog box is displayed. Click **Next**.
5. Complete dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

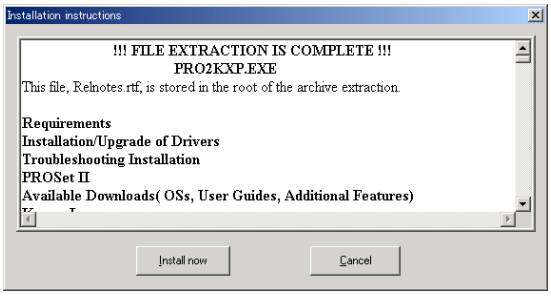
Uninstalling the Intel chipset driver

Uninstalling cannot be done.

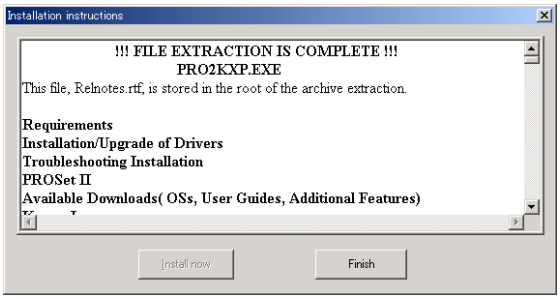
Installing the Network Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start Win2K\Network\pro2kxpm.exe.
2. The Setup Wizard starts, and the License Agreement dialog box is displayed. Select [I accept the terms in the license agreement] and click **Next**.
3. The Location to Save Files dialog box is displayed. Input the folder and click **Next**. The default setting is C:\IntelPRO.
4. When copying of the file is completed, the following dialog box is displayed. Click **Install now**.



5. The following dialog box is displayed. Click **Finish**.



Uninstalling the network driver

To uninstall the Network Driver use the following procedure:

1. Open the Control Panel, and select Add/Remove Programs.

2. The Add/Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when Intel(R) PRO Ethernet Adapter and Software is selected. Click Change/Remove.

3. The Intel(R) PRO Adapters and Software Uninstaller dialog box is displayed. Click **OK**.

Installing the Sound Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start Win2K\Sound\SETUP.EXE.

2. The Setup Wizard starts and the Welcome dialog box is displayed. Click **Next**.

3. The Digital Signature Not Found dialog box is displayed. Click **Yes**.

4. The reboot dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

Uninstalling the sound driver

Uninstall the Sound Driver using the following procedure.

1. Open the Control Panel, and select Add/Remove Programs.

2. The Add/Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when Sound MAX is selected. Click Change/Remove.

3. The Sound MAX Install dialog box is displayed. Confirm that [Remove all] is selected, and click **Next**.

4. The reboot dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

Installing the Touch Panel Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start Win2K\Touch\EPSTPWDM.EXE.

2. The Setup Wizard starts and the Welcome dialog box is displayed. Click **Next**.

3. The Choose Destination Location dialog box is displayed. Input the folder and click **Next**. The default setting is C:\Program Files\EPSON\TouchPanel.

4. The Digital Signature Not Found dialog box is displayed. Click **Yes**.

5. The Setup Complete dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

Uninstalling the touch panel driver

Uninstall the Touch Panel Driver using the following procedure.

1. Open the Control Panel, and select Add/Remove Programs.

2. The Add/Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when EPSON Touch Panel Driver is selected. Click Change/Remove.

3. The Confirm File Deletion dialog box is displayed. Click **Yes**.

4. The reboot dialog box is displayed. Click **OK**.

5. Uninstalling is completed and the dialog box is displayed. Click **OK**.

Setting the recognition range of the double click

When connecting the LCD with the touch panel and making a setup, the touch panel driver is automatically installed and the double click setting registry key of Windows is modified. But when a new user first logs on, the default value of Windows is applied to the value of the registry key, so the registry key must be modified for individual users.

When you set up Windows 2000 and create a new user, you have to modify the registry key for individual users by following the steps below.

Note
The administrator does the modification of the registry key.

Method

Select Programs - Epson Touch Panel Tool - Touch Panel Configuration Tool from the Start menu. Click **OK**. (There is no need to do any other operation.)

Installing the Serial Port Driver

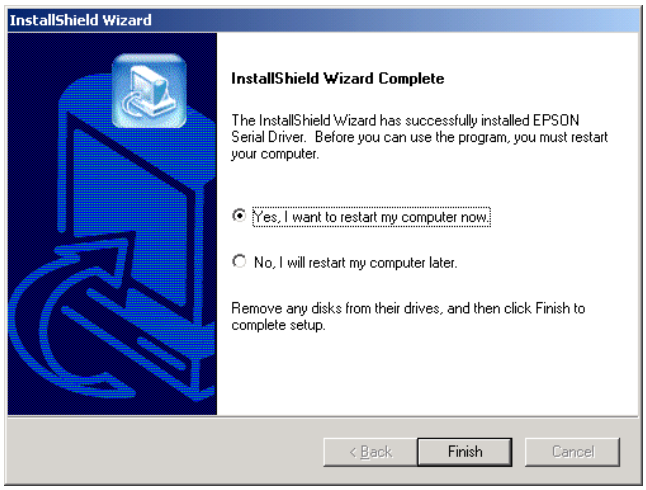
When the serial port is transmitting with Windows 2000, this Driver prevents the OS from shifting to the Standby mode and the operation of the full-on mode is continued.

When installing the service pack, install the serial driver again.

Note
Be sure an administrator installs the serial driver.

Install the serial port driver using the following procedure.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start Win2K\Epserial\EPSERIAL.EXE.
2. Start serial driver Setup. The welcome screen is displayed. Click **Next**.
3. After installation is completed, the InstallShield Wizard Complete dialog box is displayed. Select Yes, I want to restart my computer now; then click **Finish** to restart the system.


InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed EPSON Serial Driver. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

Uninstalling the serial port driver

Uninstall the serial port driver using the following procedure.

1. Open the Control Panel, and select Add/Remove Programs.
2. The Add/Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when EPSON Serial Driver is selected. Click Change/Remove.
3. The Confirm File Deletion dialog box is displayed. Click **OK**.

Installing the AC line tool

This tool is the utility to monitor the switching of the power of the system over to the battery from the AC Line with Windows 2000 when the battery unit (OI-R03) option is attached. For details, see page 4-67.

Install the AC line tool using the following procedure.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start Win2K\Epsbatt\EPSBATT.EXE.
2. The Welcome dialog box is displayed. Click **Next**.
3. The Complete dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

Uninstalling the AC line tool

Uninstall the AC line tool using the following procedure.

1. Open the Control Panel, and select Add/Remove Programs.
2. The Add/Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when EPSON AC Line watching is selected. Click Change/Remove.
3. The Confirm File Deletion dialog box is displayed. Click **OK**.

Power button prohibited setting tool for windows 2000

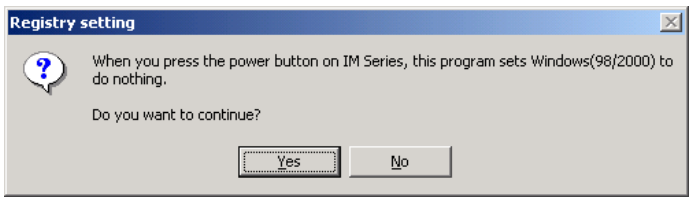
The Power button prohibited setting tool is the tool setting the registry to prohibit the shift to the shutdown and the stand-by mode even if the front power switch is pressed. It can prevent the shutdown of the system even if the front power switch is pressed by mistake.

Note on using

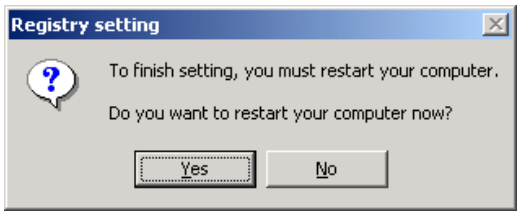
When Power Options of Windows are updated, the setting is cleared, so always set after updating the Power Options.

How to use

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start Win2K\Dissw\DISSW.EXE.
2. The following message is displayed. Click Yes. If No is clicked, the installation stops processing and returns you to Windows.


Registry setting
When you press the power button on IM Series, this program sets Windows(98/2000) to do nothing.
Do you want to continue?
Yes
No

3. When setting the registry, the following message is displayed. Click Yes, so Windows is restarted and the setting becomes valid.
   When click No, the setting returns to Windows without becoming valid. In this case, if restarting Windows, the setting becomes valid.

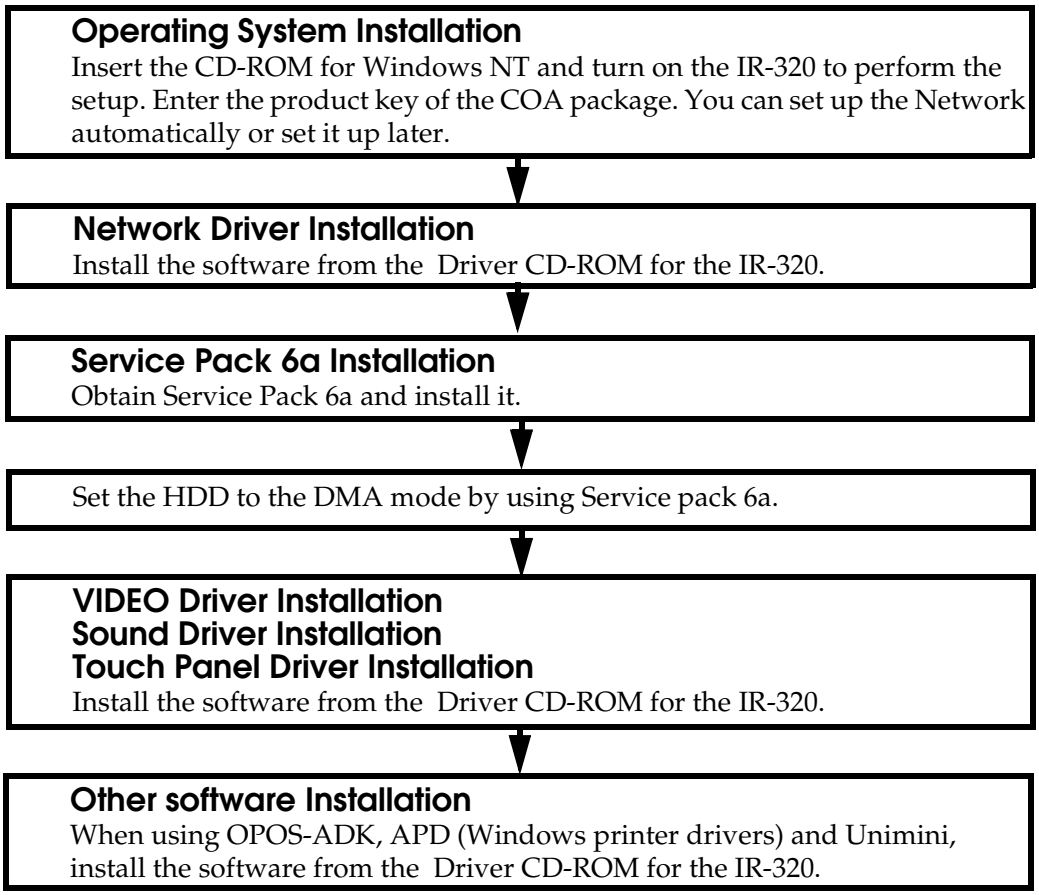


Installation for Windows NT Locally Procured Edition

Note
If you use Windows NT, you need to install Service Pack 6a.

Installation Procedure

If you install Windows NT Local procured edition, follow the steps below.


Operating System Installation
Insert the CD-ROM for Windows NT and turn on the IR-320 to perform the setup. Enter the product key of the COA package. You can set up the Network automatically or set it up later.
Network Driver Installation
Install the software from the Driver CD-ROM for the IR-320.
Service Pack 6a Installation
Obtain Service Pack 6a and install it.
Set the HDD to the DMA mode by using Service pack 6a.
VIDEO Driver Installation
Sound Driver Installation
Touch Panel Driver Installation
Install the software from the Driver CD-ROM for the IR-320.
Other software Installation
When using OPOS-ADK, APD (Windows printer drivers) and Unimini, install the software from the Driver CD-ROM for the IR-320.

Setup procedure

Windows NT is set up by using the following procedure:

1. Connect the keyboard and mouse to the IR-320.
2. Insert the CD-ROM of Windows NT in the CD-ROM drive and boot up the system.
3. The Welcome to Setup screen dialog box is displayed. Press the **Enter** key.
4. According to the instructions on the screen, input the necessary items and continue installing.
5. The Windows NT Licensing Agreement dialog box is displayed. Press the **PageDown** key and confirm contents to the last page. Press the **F8** (I agree) key.

6. According to the instructions on the screen, input the necessary items and continue installing.

7. When copying of the file is completed, according to the instructions on the screen, take the Windows NT CD-ROM out of the CD-ROM drive, and then boot the system from the HDD.

8. The Windows NT Setup Wizard starts. According to the instructions on the screen, insert the CD-ROM of Windows NT into the CD-ROM drive again and click **OK**.

9. According to the instructions on the screen, input the necessary items and continue installing.

10. The Registration dialog box is displayed. Input the 10-digit CD key shown on the COA (Certificate of Authenticity). Select **Next** to begin setup.

11. According to the instructions on the screen, input the necessary items and continue installing.

12. According to the instructions on the screen, set up the date/time and the display.

13. When installing is completed, according to the instructions on the screen, take the Windows NT CD-ROM out of the CD-ROM drive, and then click **Restart Computer** to reboot the system. The desktop screen of Windows NT is displayed.

⚠ *CAUTION:*

Setup is executed with the VGA display.

Installing the Network Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start Winnt\Network\PRONT4.EXE.

2. The Setup Wizard starts and the License Agreement dialog box is displayed. Select [I accept the terms in the license agreement] and click **Next**.

3. The Location to Save Files dialog box is displayed. Input the folder and click **Next**. The default setting is C:\IntelPRO.

4. Open the Control Panel, and select Network. A dialog box is displayed. Click **Yes**.

5. The Network Setup Wizard starts. Check the [Wired to the Network] check box, and click **Next**.

6. Click **Select from list**.

7. Click **Have Disk**.

8. The Insert Disk dialog box is displayed. Input the directory specified by step 3, and click **OK**. The default setting is C:\IntelPRO.

9. The Select OEM option dialog box is displayed. Select the [Intel(R) PRO/100 Family Adapter] , and click **OK**.

10. The [Intel(R) PRO/100 Family Adapter] is added to the network adapter. Click **Next**.

11. Select the network protocol. Set it to your system. Then click **Next**.

12. Select the network service. Set it to your system. Then click **Next**.

13. The confirm dialog box is displayed. When **Next** is clicked, installation starts.

14. The dialog box that specifies the directory of the copy origin is displayed. Insert the CD-ROM of Windows NT in the CD-ROM drive and input D:\ (if the CD-ROM drive is the D drive) and click **OK**.

15. In accordance with the environment used, continue the installation according to the instructions on the screen.

16. When installing is completed, according to the instructions on the screen, reboot the system.

⚠ CAUTION:

If the network is installed after the setup, an error is caused in the logon procedure. After installing the network driver, install Service Pack 6a.

Uninstalling the network driver

Uninstalling cannot be done.Uninstalling cannot be done.

Installing Service Pack 6a

This is installed by the exclusive installation program.

1. Insert the Service Pack 6a CD-ROM in the CD-ROM drive. Execute the "Nt4sp6\Sp6i386.exe" on the Service Pack 6a CD-ROM.

2. The Setup Wizard starts, the License Agreement dialog box is displayed. Select [Accept the license agreement] and click **Install**.

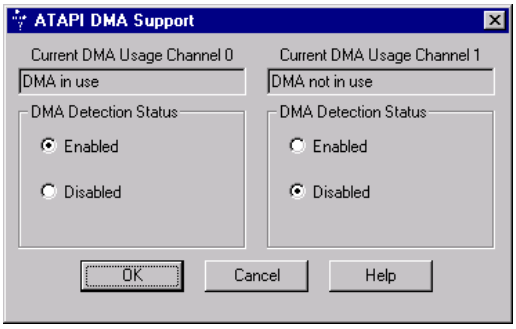
3. Installing is completed; then the dialog box is displayed. Click **Restart.**

Ultra DMA Setting for the HDD

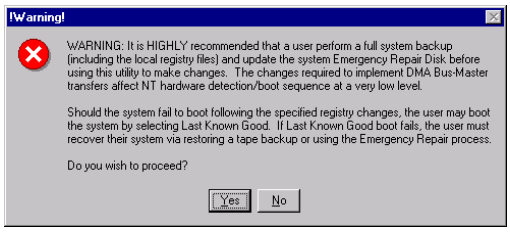
You can set the HDD to the DMA mode by following the steps below.

1. Set the Service Pack 6a CD-ROM to the CD-ROM drive. Execute the "Nt4sp6\Support\Utils\I386\Dmacheck.exe" in the Service Pack 6a CD-ROM.

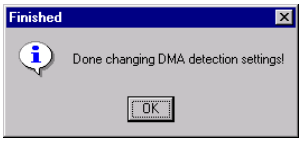
2. ATAPI DMA Support dialog box appears. Set the DMA Detection Status of the Current DMA Usage Channel 0 to enabled and click **OK**.



3. A warning dialog box appears. Click **Yes**.


!Warning!
WARNING: It is HIGHLY recommended that a user perform a full system backup (including the local registry files) and update the system Emergency Repair Disk before using this utility to make changes. The changes required to implement DMA Bus-Master transfers affect NT hardware detection/boot sequence at a very low level.
Should the system fail to boot following the specified registry changes, the user may boot the system by selecting Last Known Good. If Last Known Good boot fails, the user must recover their system via restoring a tape backup or using the Emergency Repair process.
Do you wish to proceed?
Yes
No

4. A finished dialog box appears. Click **OK**.



5. The system reboots.

Installing the Video Driver

Note
Before installing the display driver, be sure to install Service Pack 6a.

This is installed by the exclusive installation program.

1. Set the Driver CD-ROM for the IR-320 to the CD-ROM drive. Start Winnt\Video\Winnt4E67.EXE.

2. The Release note is displayed. Click **Next**.

3. The Setup Wizard starts. The Welcome dialog box is displayed. Click **Next**.

4. The License Agreement dialog box is displayed. Click **Yes**.

5. Installing is completed and the InstallShield Wizard Complete dialog box is displayed. Confirm that the [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

Uninstalling the video driver

Uninstalling cannot be done.

Installing the Sound Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start Winnt\Sound\SETUP.EXE.
2. The Setup Wizard starts and the Welcome dialog box is displayed. Click **Next**.
3. The About SoundMAX Integrated Digital Audio dialog box is displayed. Click **OK**.
4. The Setup Complete dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

Uninstalling the sound driver

1. Select [Start Menu] - [Settings] and open the control panel.
2. Select [Add/Remove Programs] in the control panel.
3. Select [SoundMAX NT].
4. Click **Add/Remove**.
5. The Confirm File Deletion dialog box is displayed. Click **Yes**.
6. Uninstalling is completed and the dialog box is displayed. Click **OK**.
7. The reboot dialog box is displayed. Click **OK**.
8. Reboot the system.

Installing the Touch Panel Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start Winnt\Touch\EPSTPNT.EXE.
2. The Setup Wizard starts and the Welcome dialog box is displayed. Click **Next**.
3. The Choose Destination Location dialog box is displayed. Input the folder and click **Next**. The default setting is C:\Program Files\EPSON\TouchPanel.
4. The Setup Complete dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

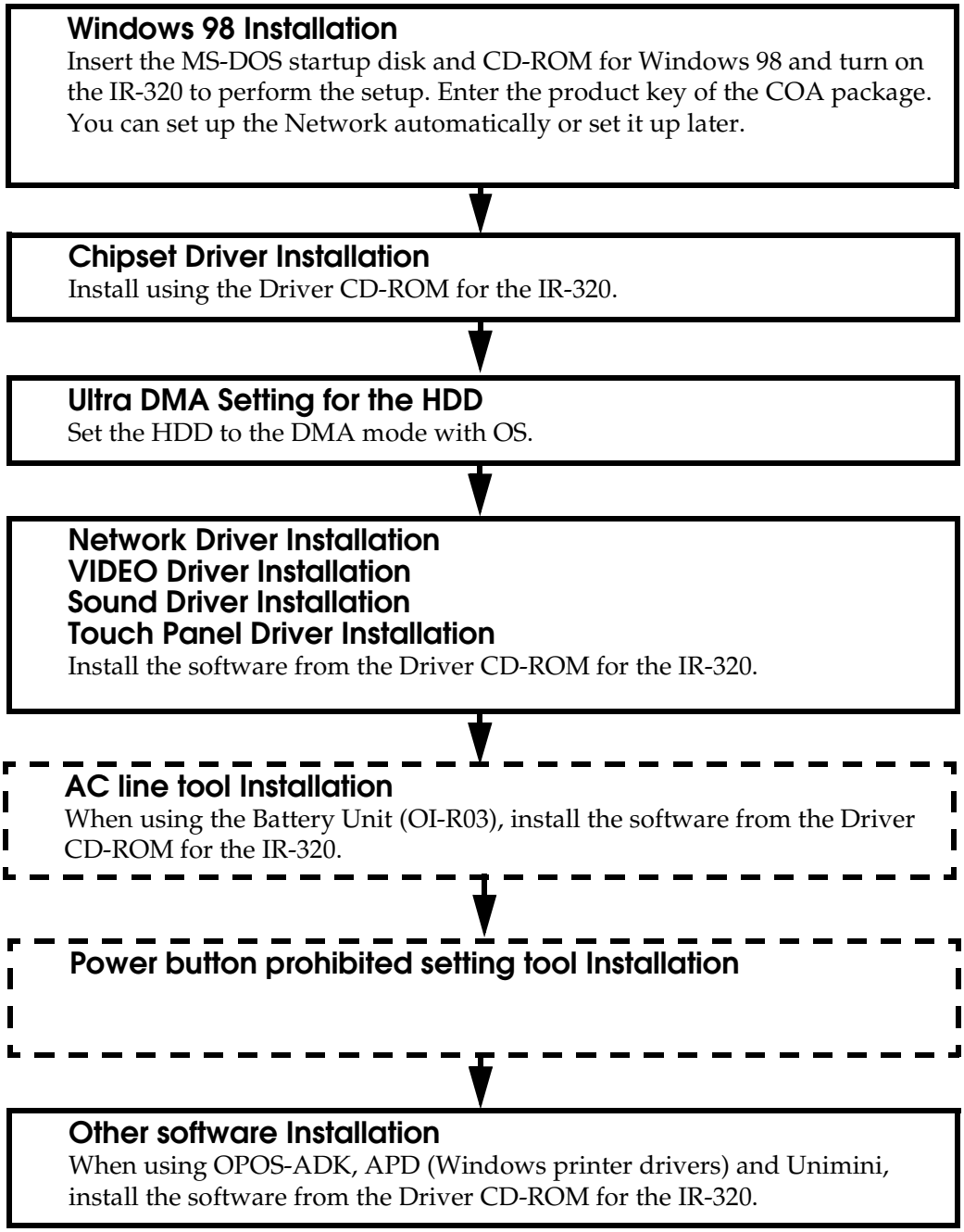
Uninstalling the Touch Panel driver

1. Select [Start Menu] - [Settings] and open the control panel.
2. Select [Add/Remove Programs] in the control panel.
3. Select [EPSON Touch Panel Driver].
4. Click **Add/Remove**.
5. The Confirm File Deletion dialog box is displayed. Click **Yes**.
6. The reboot dialog box is displayed. Click **OK**.
7. Uninstalling is completed and the dialog box is displayed. Click **OK**.

Installation for Windows 98 Locally Procured Edition

Installation Procedure

If you install a Windows 98 Locally procured edition, follow the steps below


Windows 98 Installation
Insert the MS-DOS startup disk and CD-ROM for Windows 98 and turn on the IR-320 to perform the setup. Enter the product key of the COA package. You can set up the Network automatically or set it up later.
Chipset Driver Installation
Install using the Driver CD-ROM for the IR-320.
Ultra DMA Setting for the HDD
Set the HDD to the DMA mode with OS.
Network Driver Installation
VIDEO Driver Installation
Sound Driver Installation
Touch Panel Driver Installation
Install the software from the Driver CD-ROM for the IR-320.
AC line tool Installation
When using the Battery Unit (OI-R03), install the software from the Driver CD-ROM for the IR-320.
Power button prohibited setting tool Installation
Other software Installation
When using OPOS-ADK, APD (Windows printer drivers) and Unimini, install the software from the Driver CD-ROM for the IR-320.

Setup Procedure

Windows 98 is set up by using the following procedure:

1. Connect the keyboard and mouse to the IR-320.
2. Insert the Startup disk of the MS-DOS in the FDD. Turn on the power supply to the system.
3. Insert the CD-ROM of Windows 98 in the CD-ROM drive and start SETUP.EXE. The Setup Wizard starts.
4. The License Agreement is displayed. Read it through and confirm your agreement to the terms. And then select [I accept the agreement] and select **Next** to proceed.
5. The Windows Product Key screen is displayed. Input the 25-digit product key shown on the COA (Certificate of Authenticity). Select **Next** to begin setup. If you enter an incorrect key, a message is displayed indicating that. Select Re-enter valid product key and then select **Next** to return to the Windows Protect Key screen ad input the product key again.
6. According to the instructions on the screen, input the necessary items and continue installing.
7. When copying of the file is completed, take the Setup disk of the MS-DOS out of the FDD, and then according to the instructions on the screen, reboot the system.
8. After rebooting the system, according to the instructions on the screen, set up the Network and the Date/Time.
9. According to the instructions on the screen, reboot the system.
10. Drivers for the system are installed by Plug and Play. According to the instructions on the screen, input the necessary items and continue installing.
11. When installing is completed, and according to the instructions on the screen, reboot the system. The desktop screen is displayed.

⚠ CAUTION:

Setup is executed with the VGA display.

Installing the Chipset Driver for Intel

✎ ***Note***

The Chipset Driver must be installed before installing other drivers.

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive and start \Win98\Chipset\infinst_enu.exe.
2. The Setup Wizard starts and the Welcome screen is displayed. Click **Next**.

3. The License Agreement screen is displayed. Click **Yes**.

4. The Readme Information dialog box is displayed. Click **Next**.

5. The Reboot dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish**.

6. After the system is restarted, the Chipset drivers are installed.

7. After installation, according to the instructions on the screen, reboot the system.

Uninstalling the chipset driver for Intel

Uninstalling cannot be done.

Ultra DMA Setting for the HDD

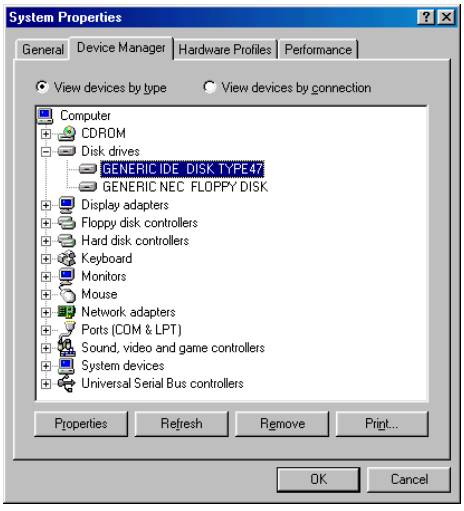
You can set the HDD to the DMA mode by following the steps below.

1. Select [Start Menu] - [Settings] and open the control panel.

2. Select [System] in the control panel.

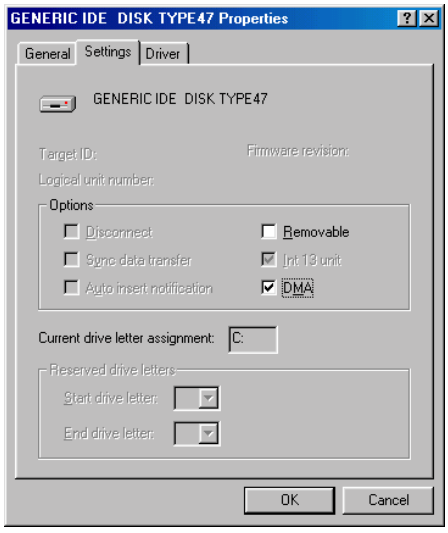
3. The system Properties dialog box appears. Click the [Device Manager] tab.

4. Select "GENERIC IDE DISK TYPE47" from [Disk drives] and click **Properties**.

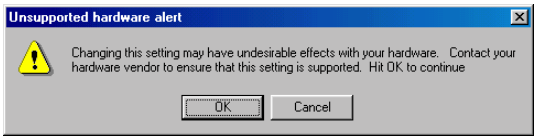


5. The GENERIC IDE DISK TYPE47 Properties dialog box appears. Click the [Settings] tab.

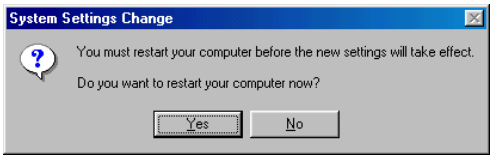
6. Check [DMA] in the [Option] group box.



7. The following dialog box appears. Click **OK**.


Unsupported hardware alert
Changing this setting may have undesirable effects with your hardware. Contact your hardware vendor to ensure that this setting is supported. Hit OK to continue
OK
Cancel

8. Click **OK** to close the GENERIC IDE DISK TYPE47 Properties dialog box.
9. Click **Close** to close the System Properties dialog box.
10. The following dialog box appears. Click **Yes** to restart the system.


System Settings Change
You must restart your computer before the new settings will take effect.
Do you want to restart your computer now?
Yes
No

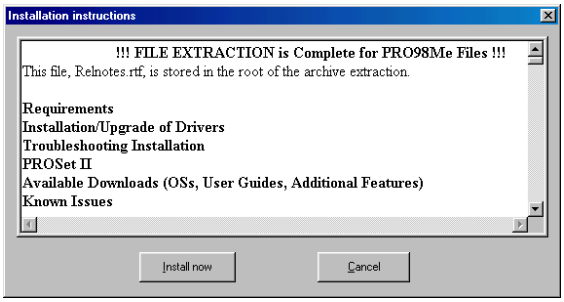
Installing the Network Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start Win98\Network\PRO98MEM.EXE.
2. The Setup Wizard starts and the License Agreement dialog box is displayed. Select [I accept the terms in the license agreement] and click **Next**.

3. The Location to Save Files dialog box is displayed. Input the folder and click **Next**. The default setting is C:\IntelPRO.

4. When copy of the file is completed, the following dialog box is displayed. Click **Install now**.



5. When installing is completed, according to the instructions on the screen, click **Restart now**. and reboot the system.

Uninstalling the network driver

1. Select [Start Menu] - [Settings] and open the control panel.

2. Select [Add/Remove Programs] in the control panel.

3. Select [Intel(R) PRO Ethernet Adapter and Software].

4. Click **Add/Remove**.

5. The confirmation dialog box of the uninstalling is displayed. Click **OK**.

6. The dialog box to reboot the system is displayed. Click **Yes** to reboot the system.

Installing the Video Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive and start \Win98\Video\Win9Xe67.EXE.

2. The Readme.txt dialog box is displayed. Click **Next**.

3. The Setup Wizard starts and the Welcome screen is displayed. Click **Next**.

4. The License Agreement dialog box is displayed. Click **Yes**.

5. Installing is completed and the Reboot dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

Uninstalling the video driver

Uninstalling cannot be done.

Installing the Sound Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start Win98\Sound\SETUP.EXE.
2. The Setup Wizard starts and the Welcome dialog box is displayed. Click **Next**.
3. The reboot dialog box is displayed. Confirm that the [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.
4. The Sound Driver is installed after the system is rebooted.

Uninstalling the sound driver

1. Select [Start Menu] - [Settings] and open the control panel.
2. Select [Add/Remove Programs] in the control panel.
3. Select [SoundMAX].
4. Click **Add/Remove**.
5. The Setup Type dialog box is displayed. Select [Remove all] and click **Next**.
6. The reboot dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish**.

Installing the Touch Panel Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start Win98\Touch\EPSTP9x.EXE.
2. The Setup Wizard starts and the Welcome dialog box is displayed. Click **Next**.
3. The Choose Destination Location dialog box is displayed. Input the folder and click **Next**. The default setting is C:\Program Files\EPSON\TouchPanel.
4. The Setup Complete dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

Uninstalling the touch panel driver

1. Select [Start Menu] - [Settings] and open the control panel.
2. Select [Add/Remove Programs] in the control panel.
3. Select [EPSON Touch Panel Driver].
4. Click **Add/Remove**.

5. The Confirm File Deletion dialog box is displayed. Click **Yes**.

6. The reboot dialog box is displayed. Click **OK**.

7. Uninstalling is completed and the dialog box is displayed. Click **OK**.

Installing the AC line tool

This tool is the utility to monitor the switching of the power of the system over to the battery from the AC Line with Windows 2000 when the battery unit (OI-R03) option is attached. For details, see page 4-67.

Install the AC line tool by the following procedure.

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start Win98\Epsbatt\EPSBATT.EXE.

2. The Welcome dialog box is displayed. Click **Next**.

3. The Complete dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

Uninstalling the AC line tool

Uninstall the AC line tool by the following procedure.

1. Select [Start Menu] - [Settings] and open the control panel.

2. Select [Add/Remove Programs] in the control panel.

3. Select [EPSON AC Line watching].

4. Click **Add/Remove**.

5. The Confirm File Deletion dialog box is displayed. Click **OK**.

6. Reboot the system.

Power button prohibited setting tool

The Power button prohibited setting tool is the tool setting the registry to prohibit the shift to the shutdown and the stand-by mode even if the front power switch is pressed. It can prevent the shutdown of the system even if the front power switch is pressed by mistake.

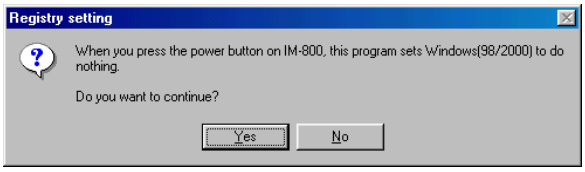
Note on using

When Power Options of Windows are updated, the setting is cleared, so always set after updating the Power Options.

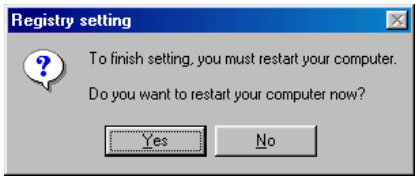
How to use

1. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive. Start Win2K\Dissw\DISSW.EXE.

2. The following message is displayed. Click Yes. If No is clicked, installation stops and you are returned to Windows.


Registry setting
When you press the power button on IM-800, this program sets Windows(98/2000) to do nothing.
Do you want to continue?
Yes
No

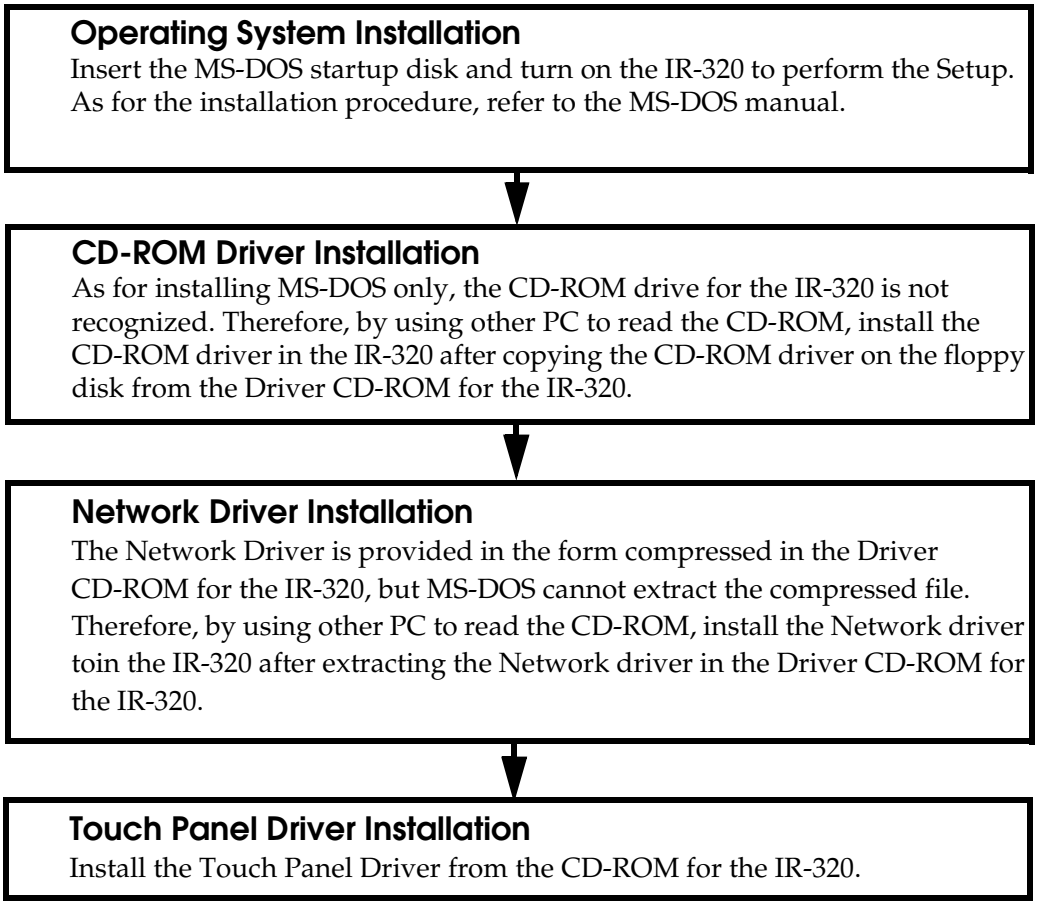
3. When setting the registry, the following message is displayed. Click Yes, so Windows is restarted and the setting becomes valid.
   If you click No, the setting returns to Windows without becoming valid. In this case, when you restart Windows, the setting becomes valid



Installation for MS-DOS Locally Procured Version

Installation Procedure

If you install MS-DOS Locally procured version, follow the steps below.


Operating System Installation
Insert the MS-DOS startup disk and turn on the IR-320 to perform the Setup. As for the installation procedure, refer to the MS-DOS manual.
CD-ROM Driver Installation
As for installing MS-DOS only, the CD-ROM drive for the IR-320 is not recognized. Therefore, by using other PC to read the CD-ROM, install the CD-ROM driver in the IR-320 after copying the CD-ROM driver on the floppy disk from the Driver CD-ROM for the IR-320.
Network Driver Installation
The Network Driver is provided in the form compressed in the Driver CD-ROM for the IR-320, but MS-DOS cannot extract the compressed file. Therefore, by using other PC to read the CD-ROM, install the Network driver toin the IR-320 after extracting the Network driver in the Driver CD-ROM for the IR-320.
Touch Panel Driver Installation
Install the Touch Panel Driver from the CD-ROM for the IR-320.

Installing the CD-ROM Driver

After installing the MS-DOS locally procured edition only, the CD-ROM drive of the IR-320 is not recognized. Therefore, use other PC to read the CD-ROM, and install the CD-ROM driver to the IR-320 after copying the CD-ROM driver to a floppy disk from the Driver CD-ROM for the IR-320.

Note
When using the CD-ROM driver, MSCDEX.EXE of MS-DOS is needed.

Install the CD-ROM driver by the following procedure.

1. Start the other PC to read the CD-ROM, and insert the Driver CD-ROM for the IR-320 to the CD-ROM drive. Insert a formatted floppy disk in the FDD.

2. Copy \Dos62\CDROM\CDATAPI.SYS in the Driver CD-ROM for the IR-320 to the floppy disk.

3. Turn on the IR-320 to start MS-DOS.

4. Insert the floppy disk copied by step 2 in the FDD of the IR-320.

5. Copy the CDATAPI.SYS on the floppy disk to the optional directory in the hard disk. For example, copy it on C:\DOS\directory.

6. Add the following description to the CONFIG.SYS of MS-DOS with a text editor, and save it. The following example is for copying to the C:\DOS\directory. In case of copying to other directory, describe the directory name with its full path.
   ```
   DEVICE=C:\DOS\CDATAPI.SYS /D:CDROM
   ```

7. Add the following description to the AUTOEXEC.BAT of the MS-DOS with a text editor, and save it. The following example has MSCDEX.EXE in the C:\DOS\directory. If you have it in another directory, describe the directory with its full path. In case of the /L option, specify a drive name. The following is an example specifying the D drive. In case of specifying the other drive name, describe the optional drive name.
   ```
   C:\DOS\MSCDEX.EXE /D:CDROM /L:D
   ```

8. Restart MS-DOS.

Installing the Network Driver

The Network Driver is provided in the form compressed in the Driver CD-ROM for the IR-320. MS-DOS cannot extract the compressed file. Therefore, by using another PC to read the CD-ROM, install the Network driver to the IR-320 after extracting the Network driver in the Driver CD-ROM for the IR-320.

Note
Windows 98, NT or 2000 is necessary for extracting the compressed file.

Extracting the network driver

Extract the compressed file of the Network Driver by the following procedure.

1. Start the other PC to read the CD-ROM, and start either Windows 98, NT, or 2000.

2. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive.

3. Start \Dos62\Network\PRODOS.EXE.

4. The Setup Wizard starts, and the License Agreement dialog box is displayed. Select [I accept the terms in the license agreement] and click **Next**.

5. The dialog box that specifies the place of the copy of the file is displayed. Input the place and click **Next**. The default setting is C:\Program Files\PRODOS.

6. When copying of the file is completed, the Release note is displayed.

Installing the network driver

Note

Different environments require different ways of setting the Network Driver. For the details of the installation procedure, see the RELNOTES.rtf in the C:\Program Files\PRODOS\ directory in the file extracted by the preceding procedure.

The following example describes the procedure to install the Netware DOS ODI Client Driver.

1. Copy all files in the C:\Program Files\PRODOS\ODI\ directory in the file extracted by the preceding procedure on the floppy disk.

2. Turn on the IR-320 to start MS-DOS.

3. Insert the floppy disk copied by step 1 in the FDD of the IR-320.

4. Copy all files in the floppy disk to the optional directory in the hard disk. For example, copy it to the C:\NWCLIENT\ directory.

5. Add the following description to the CONFIG.SYS of the MS-DOS with a text editor, and save it.

```
LASTDRIVE=Z
```

6. Edit the following description in C:\NWCLIENT\NET.CFG with a text editor, and save it. The following is the example of the setting for the NET.CFG.

```
LINK DRIVER E100BODI
FRAME ETHERNET_802.2
SPEED=100
PROTOCOL IPX EO Ethernet_802.2

NETWARE DOS REQUESTER
FIRST NETWORK DRIVE = F
PB BUFFERS = 10
```

7. Add the following description to the AUTOEXEC.BAT of MS-DOS with a text editor, and save it. The following is the example of the having the driver file in the C:\NWCLIENT\ directory. In case of having it in the other directory, describe as "CD [the directory name]".

```
CD NWCLIENT
LSL
E100BODI
IPXODI
NETX
```

8. Turn off the IR-320 and connect it to the network.

9. Turn on the IR-320 and restart MS-DOS.

Installing the Touch Panel Driver

1. Turn on the IR-320 and start MS-DOS.

2. Insert the Driver CD-ROM for the IR-320 in the CD-ROM drive.

3. Copy \Dos62\Touch\CALDSTD.EXE and MEDSTD.COM in the Driver CD-ROM for the IR-320 to the optional directory in the hard disk. For example, copy it on C:\Touch\directory.

Executing Touch Panel Driver

Enter the following from the prompt to install the driver:

```
medstd [Ixx] [Pxxxx] [Bxx] [Fxxxx] [Dx] [S]
```

The meaning of these parameters are as follows.

Ixx:	IRQ number [Default: 10]
Pxxxx:	Port address [Default: 2E8]
Bxx:	Baudrate [Default: 9600]
Fxxxx:	Frequency of Beep [Default: 3E8]
Dx:	Time of Beep [(25ms)x(X)]
S:	Graphic mode [You need parameter S.]
	Text mode [You don't need parameter S.]

< Example >

```
medstd I10 P2E8 B96 F3E8 D2 S
```

Setting of Touch Panel Driver

Touch Panel Driver for Windows

Calibrating the Touch Panel

The touch panel calibration refers to the setting work for matching the physical position where the operator presses the touch panel with the software position recognized by the computer.

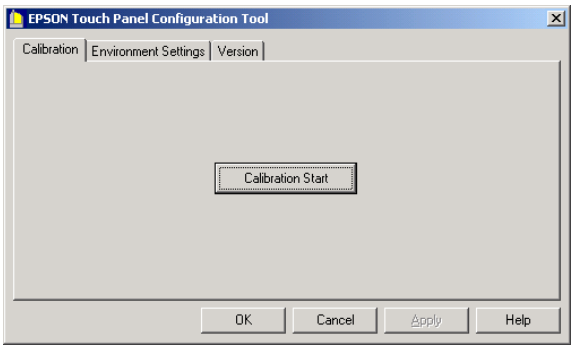
The touch panel calibration is executed when the touch point of the touch panel is displayed.

The touch panel calibration on Windows is executed by using the following procedure:

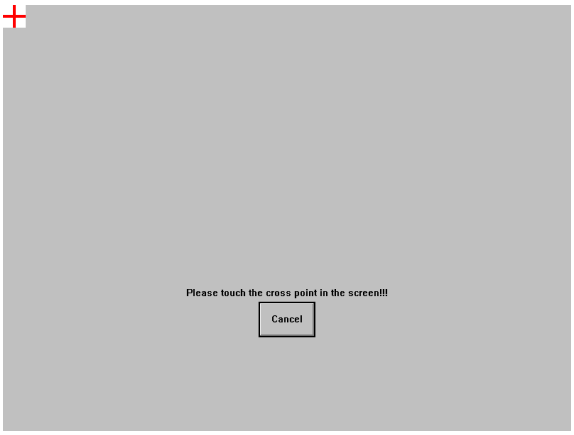
1. Start Windows.

2. Select Programs – EPSON Touch Panel Tool – Touch Panel Configuration Tool in that order from the Start menu.

3. The EPSON Touch Panel Configuration Tool starts. Click the Calibration tab.



4. Click **Calibration Start**. The calibration screen is displayed and a **+** mark is displayed in the top left corner of the screen.



5. Press the **+** mark's intersection point on the screen. The **+** mark will then move to the top center of the screen.

6. Hereafter, press the **+** mark's intersection point on the screen. The **+** mark is thus displayed consecutively in 9 places, top left, top center, top right, left center, center, right center, bottom left, bottom center, bottom right. Click **Cancel** to cancel the calibration operation.

7. The calibration is completed when all the intersection points at all 9 places have been pressed. Click **OK** to close the EPSON Touch Panel Configuration Tool.

Touch Panel Configuration Tool

The touch panel configuration tool can set the detailed items related to touch panel operation. It consists of the following four functions.

- ❏ Calibration Function
- ❏ Operation Setting Function
- ❏ Version Display Function
- ❏ Double Click Permissible Range Setting Function

Note:
Only a user with administrator authority can use the calibration function and operation setting function. Each item is displayed in gray and cannot be set if an ordinary user uses the tool.

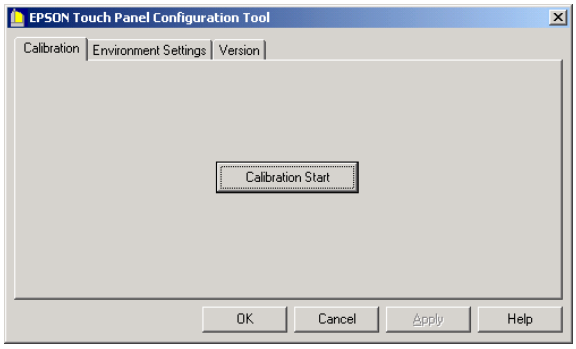
Starting the Touch Panel Configuration Tool

Start the touch panel environment setting tool by the following procedure.

1. Start Windows
2. Select Programs – EPSON Touch Panel Tool – Touch Panel Configuration Tool in that order from the Start menu.
3. The Epson Touch Panel Configuration Tool starts.

Calibration Function

The following screen is displayed if the Calibration tab is clicked.

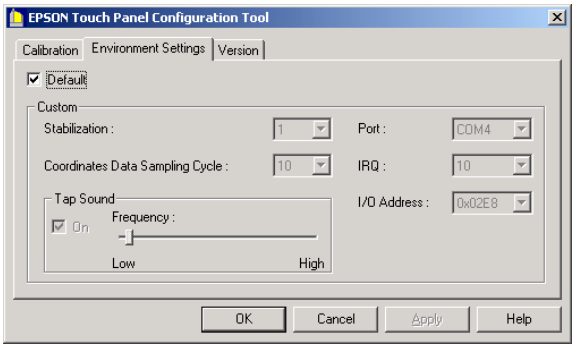


Note:
Only a user with administrator authority can use the calibration function. Each item is displayed in gray and cannot be set if an ordinary user uses the tool.

Calibration starts when **Calibration Start** is clicked. See the previous item, "Touch Panel Calibration," for details of the calibration procedure.

Operation Setting Function

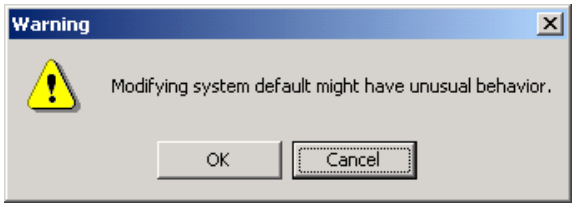
The following screen is displayed when the Environment Settings tab is clicked.



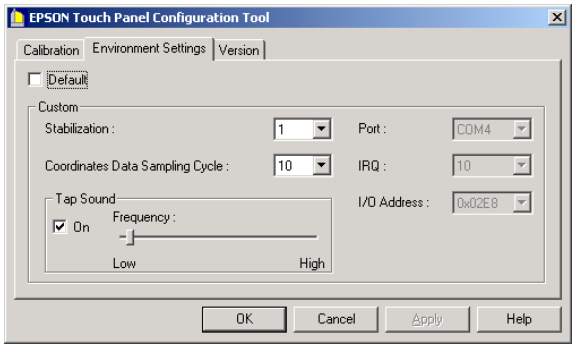
Note:
Only a user with administrator authority can use the operation setting function. Each item is displayed in gray and cannot be set if an ordinary user uses the tool.

[Default] Add a check mark to use the default value for the setting. Each setting item in the Custom area is displayed in gray and cannot be changed if Default is checked. Remove the check mark from Default to change the settings for each item.

1. The following dialog box is displayed if the check mark is removed from the Default item.



2. Each of the items below can be set if **OK** is clicked.



[Stabilization] Set the jitter correction value within a range of 1 to 20.
The default setting is 1.
The jitter correction takes multiple samplings of the touch panel device's coordinate data and calculates the average value to average and thus stabilize the touch position. The Stabilization setting sets the number of times coordinate data are sampled.

[Coordinates Data Sampling Cycle] This sets the coordinate data sampling interval within a range of 10 to 155 ms. The default setting is 10. The coordinate data sampling interval sets the time coordinate data are sent to the system from the touch panel device.

[On] This sets the tap sound On or Off. The tap sound is output if this item is checked. The default setting is On.

[Frequency] This sets the tap sound frequency within a range of 37 to 16383 Hz. Dragging the slider left or right changes the setting value. The default setting is 600 Hz.

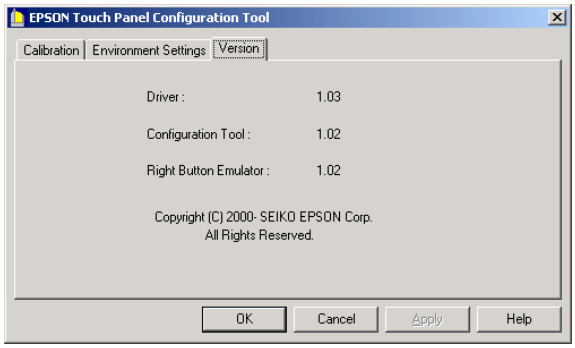
[Port] This displays the port used. This item cannot be set here.

[IRQ] This displays the IRQ used. This item cannot be set here.

[I/O Address] This displays the I/O address used. This item cannot be set here.

Version Display Function

The following screen is displayed if the Version tab is clicked.



The version information for the Driver, Configuration Tool and Right Button Emulator are displayed.

Double Click Permissible Range Setting Function

The double click permissible range setting function sets the permissible range for Windows to recognize a double click.

The permissible range in the Windows default setting value is narrow and if the second tap position is too far from the first tap position when a double click is attempted on the touch panel, a double click will not be recognized.

This function can make it easier for the computer to recognize a double click by setting the permissible double click recognition range so that it is wider.

Note:
*When Windows 2000 is set up and a new user is entered, set the double click latitude for each user. As for the details, refer to the "**Setting the recognition range of the double click**" section.*

Start the Double Click Latitude Setting by the following procedure.

Method

Execute Programs - EPSON Touch Panel Tool - Touch Panel Configuration Tool from the start menu. Click **OK**. (There is no need to set other operations.)

Touch Panel Right Button Emulator

The touch panel right button emulator is a tool that switches the tap operation between the right button and left button in order to perform a mouse right button operation on the touch panel.

The touch panel right button emulator is displayed in the front plane window at all times and switching between the right button and left button operation can be done any time.

Starting the Touch Panel Right Button Emulator

Start the touch panel right button emulator by the following procedure.

1. Start Windows.
2. Select Programs – EPSON Touch Panel Tool – Right Button Emulator in that order from the Start menu.
3. The touch panel right emulator starts and the following dialog box is displayed.

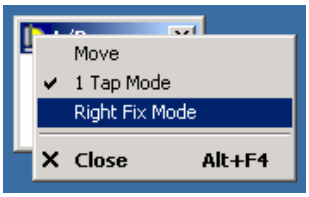
Operation

1. Setting the Mode

The touch panel right button emulator is equipped with the following two modes.

1. 1 tap mode
   One tap only after the right button is specified is recognized as a right click. This mode is set as the default.
2. Right Fix Mode
   Taps after the right button is specified are always recognized as right clicks.

The mode is switched in the right button emulator menu. The menu is displayed by tapping the icon on the title bar; then the desired mode is selected. The set mode is displayed underneath the mouse icon.



2. Switching between the right and left buttons

Switching between the right and left buttons can be accomplished by tapping the mouse icon. The mouse icon color changes to the color corresponding to the right button or left button each time the icon is tapped, enabling the operator to recognize which button is selected.

When operating the right button

This operation sends touch panel coordinate data as mouse right button data.

When in the 1 Tap Mode

When in the Right Fix Mode

When operating the left button (normal operation)

This operation sends touch panel coordinate data as mouse left button data.

When in the 1 Tap Mode

When in the Right Fix Mode

Touch Panel Driver for MS-DOS

When the LCD panel is changed or the MEDSTD.COM is installed, calibrate the Touch Panel by using the calibration.

Note:
MEDSTD.COM must load before the calibration.

Follow the procedures below to calibrate.

1. Type the following:

   ```
   caldstd I10 P2E8 B96 S
   ```

   The meaning of these parameters are as follows.

Ixx:	IRQ number [Default: 10]
Pxxxx:	Port address [Default: 2E8]
Bxx:	Baudrate [Default: 9600]
S:	Graphic mode [You need parameter S.]
	Text mode [You don't need parameter S.]

2. The calibration screen is displayed, and nine + mark is displayed.
3. Press the + mark in the top left corner of the screen.
4. Touch the nine "+" marks on the screen.
5. When you finish calibration, press SPACE bar to save the calibrated data. Then press any key to go to drawing test.
6. If you need to stop the calibration, press the "ESC" key to ignore the calibrated data. Then press any key to go to drawing test.

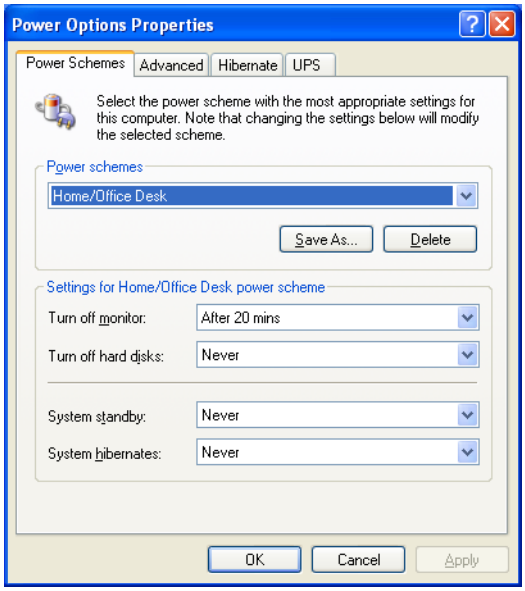
HDD Power Down Timer Setting

When the time the HDD is not accessed exceeds the specified time, the HDD motor can be stopped. The method of setting depends on the OS.

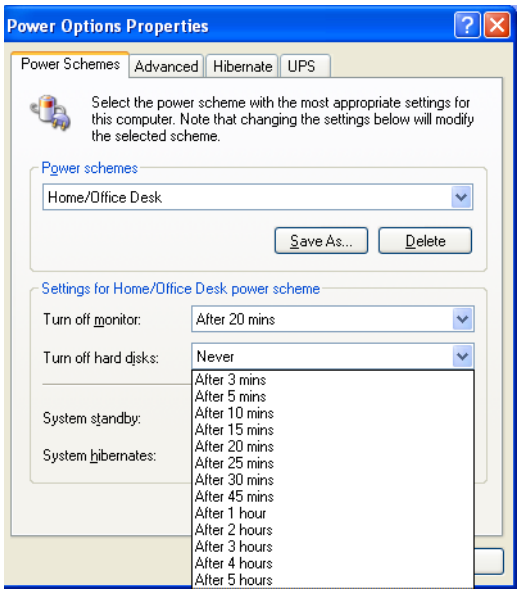
- ❏ Windows XP Professional — This is set with the OS
- ❏ Windows 2000 Professional — This is set with the OS
- ❏ Windows 98 SE — This is set with the OS
- ❏ Windows NT Workstation 4.0 SP6a — This is set with the BIOS
- ❏ MS-DOS Ver.6.22 — This is set with the BIOS

Windows XP

1. Select [Settings]-[Control Panel]-[Performance and Maintenance]-[Power Options] in the Start menu of Windows.
2. [Power Options Properties] is displayed. Click the [Power Schemes] tab.



3. Select the time in the [Settings for Home/Office Desk power scheme: Turn off hard disks] option.



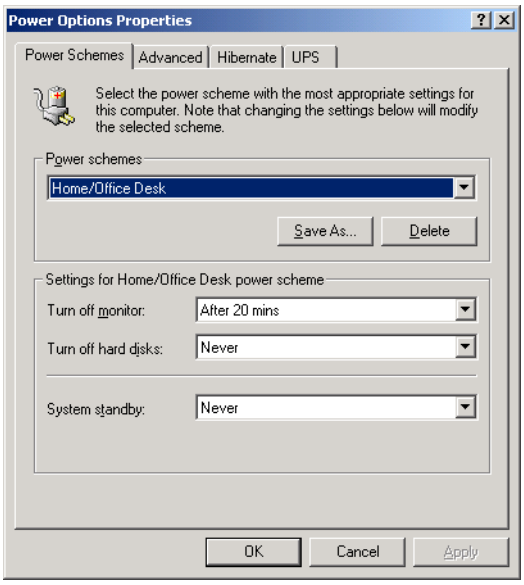
4. Click [OK].

When there is no HDD access for the time set, the HDD Power Down Timer switches over to HDD Power Down and the motor of the HDD stops.

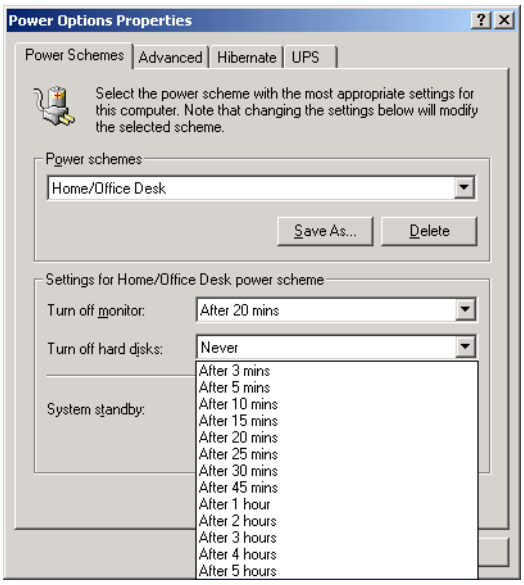
Windows 2000 Professional

1. Select [Settings]-[Control Panel]-[Power Options] in the Start menu of Windows.

2. [Power Options Properties] is displayed. Click the [Power Schemes] tab.



3. Select the time in the [Settings for Home/Office Desk power scheme: Turn off hard disks] option.



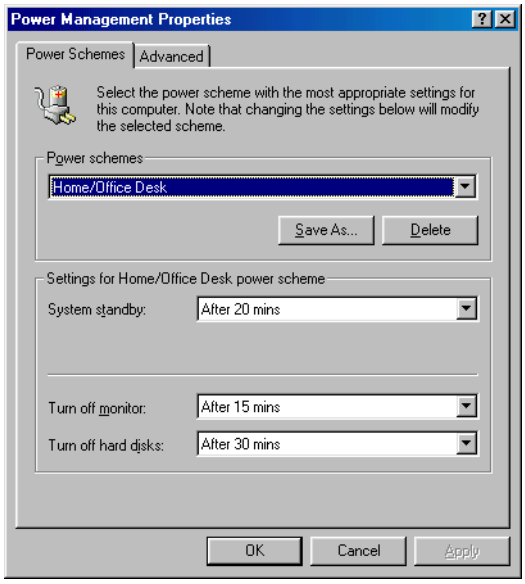
4. Click [OK].

When there is no HDD access for the time set, the HDD Power Down Timer switches over to HDD Power Down and the motor of the HDD stops.

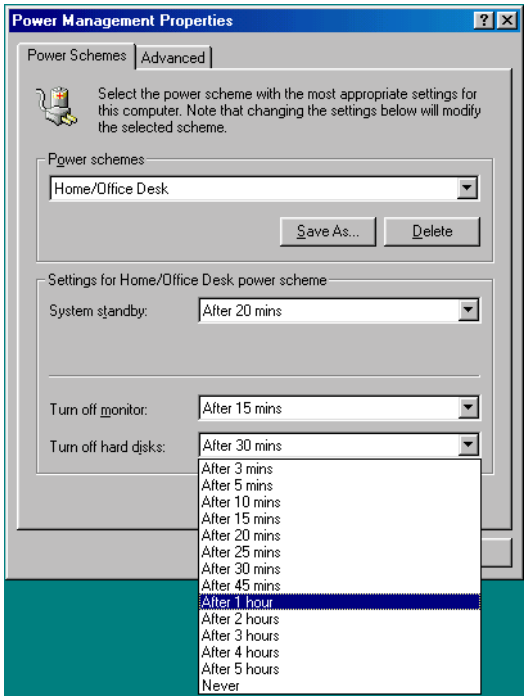
Windows 98SE

1. Select [Settings]-[Control Panel]-[Power Management] in the Start menu of Windows.

2. [Power Management Properties] is displayed. Click the [Power Schemes] tab.



3. Select the time in the [Settings for Home/Office Desk power scheme: Turn off hard disks] option.



4. Click [OK].

When there is no HDD access for the time set, the HDD Power Down Timer switches over to HDD Power Down and the motor of the HDD stops.

Windows NT Workstation 4.0 SP6a

Controlling the HDD motor is done through the BIOS. For the details, see Chapter 5 “BIOS Functions.”

MS-DOS Ver.6.22

Controlling the HDD motor is done through the BIOS. For the details, see Chapter 5 “BIOS Functions.”

Shift to the HDD power ON

When access to HDD occurs, the motor of HDD begins to start and the HDD becomes accessible.

Chapter 4
Utilities

This chapter covers the utilities and development software provided for the IR-320.

Types of Utilities

The utilities and development software for the IR-320 are listed below:

Utilities for MSR (DM-MR123)

These utilities are used to set the functions for the MSR and write them into the keyboard firmware.

Utility	Utility name	OS	Page
Keyboard firmware setting utility	PKMODE32.EXE	Windows XP/2000/NT/98	4-10
Keyboard firmware setting utility	PKMODE2.EXE	MS-DOS	4-53

Utility for the Key Lock

This utility is used to define the keys for the Key Lock, write them into the keyboard firmware, and create definition files.

Utility	Utility name	OS	Page
Key Lock setting utility	KEYLOCKCFG.EXE	Windows XP/2000/NT/98	4-12

Utilities for the 28-key Keyboard (DM-KR028)

These utilities are used to define the keys for the 28-key keyboard, write them into the keyboard firmware, and create definition files.

Utility	Utility name	OS	Page
28 key definition utility	28KEYCFG.EXE	Windows XP/2000/NT/98	4-17
28 key definition utility	POSKB28.EXE	MS-DOS	4-58

Layer-supported 28 Key Definition Utilities

These utilities are used to define 28 keys and support the layer function. With these utilities, it is possible to freely define and change the definitions of keys on the 28-key keyboard for each layer.

Utility	Utility name	OS	Page
Layer-supported 28 key definition utility	28KYCFGL.EXE	Windows XP/2000/NT and Windows 98	4-25
Layer-supported 28 key automatic definition utility for Windows	PKLDL32.EXE	Windows XP/2000/NT and Windows 98	4-39
Layer-supported 28 key automatic definition utility for MS-DOS	PKLDL.EXE	MS-DOS	4-40
Layer switching and reading library	LYFUNC.DLL PKFUNC.DLL	Windows XP/2000/NT	4-42

Utilities for the 84-key Keyboard (DM-KR084)

These utilities are used to define the keys for the 84-key keyboard, write them into the keyboard firmware, and create definition files.

Utility	Utility name	OS	Page
84 key definition utility	84KEYCFG.EXE	Windows XP/2000/NT/98	4-43
84 key definition utility	POSKB.EXE	MS-DOS	4-61

Other Keyboard Firmware Related Utilities

These utilities are used to write definition files into the keyboard firmware, and rewrite the keyboard firmware.

Utility	Utility name	OS	Page
Definition data automatic setting utility	PKLD32.EXE	Windows XP/2000/NT/98	4-48
Definition data automatic setting utility	PKLOAD.EXE	MS-DOS	4-67
Firmware rewriting tool	PKUPDT2.EXE	MS-DOS	4-67

Power Management Related Utilities

These utilities are used to set the save electric power mode and the power management function to extend the parts lifetime.

Utility	Utility name	OS	Page
Power Management Driver APM2.0	APM32.EXE	Windows NT	4-71
AC Line tool	EPSBATT.EXE	Windows XP/2000	4-76
Power button tool	DISSW.EXE	Windows 2000/98	4-78

Logon Keyboard

This utility is used to log on to the OS without connecting the keyboard and the mouse .

Utility	Utility name	OS	Page
Logon Tool	Actinkey/Logonkey	Windows 2000/NT	4-50

Utilities for the Front CompactFlash Adapter

These utilities are included with the front CF adapter (OI-R07) option. While operating the system, the CompactFlash card can be attached or removed.

Utility	OS	Page
Bay Swap	Windows NT	4-78

A Tool for Software Development

This tool is the development tool to facilitate the development of POS applications by standardizing the control system of the POS peripheral devices.

Utility	OS	Page
EPSON OPOS ADK	Windows 2000/NT/98/95	4-52

How to Obtain Each Utility

The procedure for obtaining each utility is as follows: For more information about the installation procedure of each utility, refer to the item describing each utility.

Utility	How to obtain it
Keyboard firmware setting utility (for Windows)	They are preinstalled in the BACKUP\KEYCFG\WIN\DISK1 folder. They can be used by running Setup.
Key Lock setting utility (for Windows)	
28 key definition Utility (for Windows)	
84 key definition Utility (for Windows)	
Definition data automatic setting utility (for Windows)	
Keyboard firmware setting utility (for MS-DOS)	They are preinstalled in the BACKUP\KEYCFG\DOS folder. They can be used by running Setup.
28 key definition utility (for MS-DOS)	
84 key definition utility (for MS-DOS)	
Definition data automatic setting utility (for MS-DOS)	
Layer-supported 28 key definition utility	These utilities are not preinstalled. If you want to use any of these utilities, please contact an EPSON dealer.
Layer-supported 28 key automatic definition utility for Windows 95/98 and Windows 2000/NT	
Layer-supported 28 key automatic definition utility for MS-DOS	
Layer switching and reading library	
Power Management Driver APM 2.0	This is included with the battery unit (OI-R03-021).
AC Line tool	They are preinstalled in the BACKUP\Epsbatt folder.
Power button tool	They are preinstalled in the BACKUP\Dissw folder.
Logon Tool	They are preinstalled in the BACKUP\LOGON folder. They can be used by running Setup.
Bay Swap	This is included with the front CF adapter (OI-R07) of the option.
EPSON OPOS ADK	They are preinstalled in the BACKUP\OPOSADK folder. They can be used by running Setup.

⚠ CAUTION

The floppy disks that come with the DM-KR028 and DM-MR123 also contain utilities, but do not use these utilities with the IR-310 and IR-320.

Keyboard Firmware Related Utilities (MSR, Key Lock, 28-key Keyboard)

These include utilities related to the keyboard firmware. These utilities are used to set the MSR, the definition data for the Key Lock, and the definition data for the 28-key keyboard.

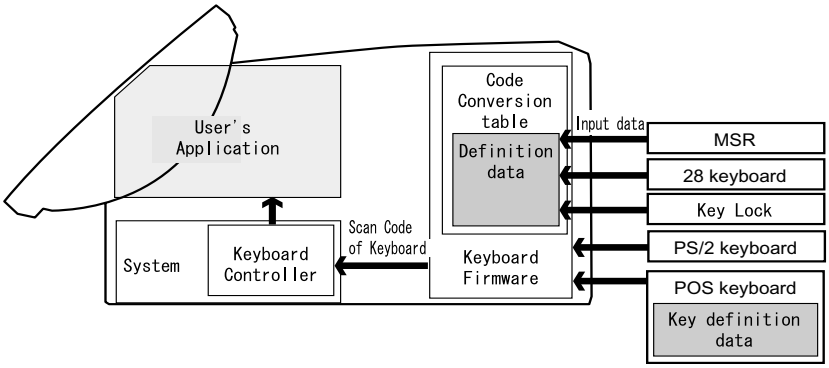
Keyboard Firmware

What is the keyboard firmware?

The IR-320 is equipped with a special POS device keyboard controller LSI, and the following devices are supported by the firmware of this keyboard controller.

- Key Lock of IR-320
- MSR (DM-MR123)
- 28-key keyboard (DM-KR028)
- PS/2 keyboard
- Extemally connected POS keyboard

The input data from these devices is converted into the scan code of the keyboard according to the code conversion table in the keyboard firmware, all of which is then handled as keyboard input on the system side.



The code conversion table has the key definition data for converting the setting values and input data of each device into a scan code, which can be rewritten by the utility of each device. However, the externally connected POS keyboard must be set by using a special tool, and the setting values are then written into the memory in the keyboard.

The following operations can be performed by having the IR-320 manage the code conversion table:

- Key definition data and other data that may change frequently can be managed separately from applications. This will reduce the number of application development steps.

- Change and management can be performed easily since key definition data is in the system. By creating a batch file for setup (a floppy disk can be used to store this file including definition data and a batch file program), systems having the same settings can be set up in a short period of time.

- By storing key definition data in a server, the key definition data of multiple systems can be managed uniformly and the definition data of all systems can be changed simultaneously.

Keyboard Firmware and Utilities

Utilities for setting the MSR, writing the definition data for the KeyLock and 28-key keyboard into the keyboard firmware and others are provided.

Also, the settings for the MSR and the definition data for the Key Lock and 28-key keyboard can be saved in a file as a definition file, and that definition file can be written into the keyboard firmware by using an appropriate definition data automatic setting utility. This method makes it possible to set up multiple systems using the same settings, or it can be executed as a batch file, and for writing it into another system are also provided.

Function	Utility for Windows	Utility for MS-DOS
MSR setting	PKMODE32.EXE	PKMODE2.EXE
Key Lock definition	KEYLOCKCFG.EXE	None
28 key definition	28KEYCFG.EXE	POSKB28.EXE
84 key definition	84KEYCFG.EXE	POSKB.EXE
Layer-supported 28 key definition	28KYCFGL.EXE	None
Writing definition files into keyboard firmware	PKLOAD32.EXE	PKLOAD.EXE
Writing definition files into keyboard firmware (for layer-supported 28 keys)	PKLDL32.EXE	PKLDL.EXE
Firmware rewriting	None	PKUPDT2.EXE

How to Use Keyboard Firmware Related Utilities

Settings for the programming of an external POS keyboard

To program an external POS keyboard, it is necessary to turm off some of the keyboard firmware functions in order to prevent system malfunction. Check the [Ignore MSR/Keyboard Commands] check box in the MSR setting utility (keyboard firmware setting utility), or use the CMDOFF command in MS-DOS.

Setting up one system

1. Connect the unit you are using, and check its operation.

2. Connect a PS/2 keyboard to the keyboard/mouse connector.

3. If keyboard firmware related utilities are not installed, install them according to the procedure described later. (These utilities are not installed during the initial setup.)

4. Perform key definitions and setting using the utilities provided for each of the units you are using, and write them into the keyboard firmware. It the same settings will be used for multiple systems, create a definition file at this time.

This completes the setup of one system. To verify the contents of the settings start Windows "Notepad" or another text editor, and operate each unit. If data is input normally, the setup was successful.

Setting up multiple systems

1. Set up and define the units you are using for one system. Create the definition files (*.k28, *.kyl and other files) of each of the units at this time.

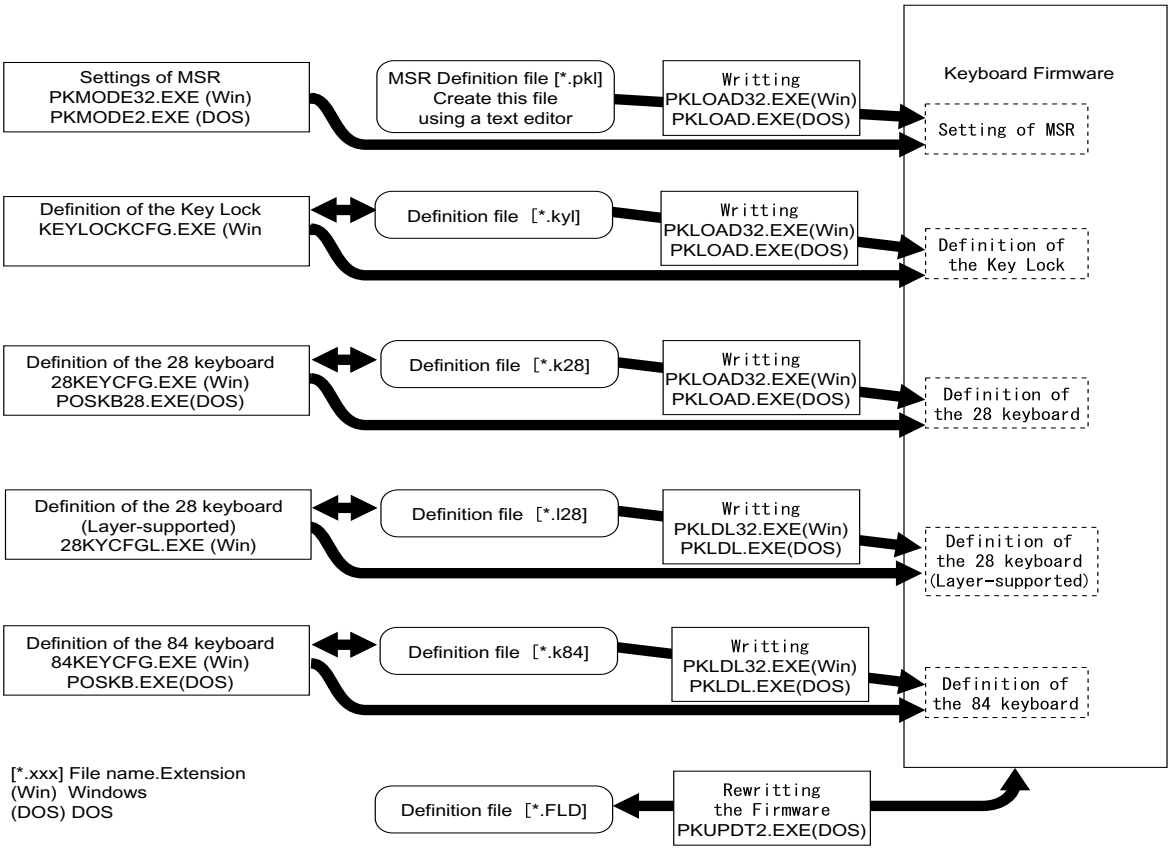
2. If you are using an MSR, create a definition file (*.pkl file) using a text editor.

3. Copy each of the definition files onto a floppy disk (or other appropriate media).

4. Create an appropriate folder in the hard disk of each system, and copy the definition files stored on the floppy disk to that folder.

5. Using an appropriate definition data setting utility, write the contents of the definition files into the keyboard firmware. Because the definition data setting utility only defines one file at a time, write the settings for the Key Lock and 28-key keyboard sequentially. You can create a batch file to execute this operation so that the definition data can be rewritten each time the system is started, or the definition data can also be rewritten using a file on a server on an intranet.

Although the keyboard firmware itself can be written by using a keyboard firmware rewriting tool, such tools are not available for Windows.



Installing

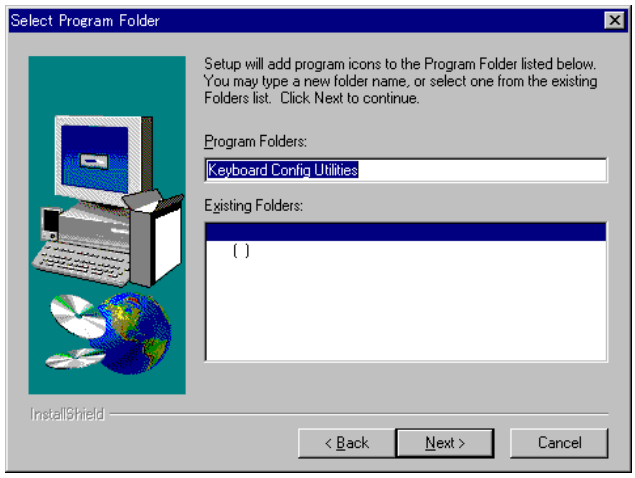
The following four utilities can be used after they are installed:

- Keyboard Firm Setting utility
- Key Lock Setting utility
- 28-Key Definition utility
- Automatic Definition Data Setting utility

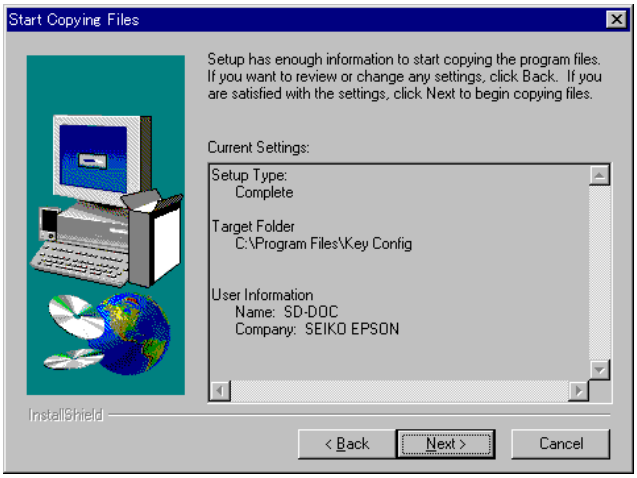
For installation, use the following procedure:

1. Execute C:\Backup\keycfg\win\Disk1\Setup.exe.
2. The installation program starts, and the Welcome dialog box is displayed. Click **Next**.
3. The Choose Destination Location dialog box is displayed. Specify the destination of the installation directory (c:\Program Files\Key Config is the default). Click **Next**.

4. The Select Program Folder dialog box is displayed. Specify the program folder name (Keyboard Config Utilities is the default). Click **Next**.


Select Program Folder
Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing Folders list. Click Next to continue.
Program Folders:
Keyboard Config Utilities
Existing Folders:
( )
InstallShield
< Back
Next >
Cancel

5. The screen for confirming the setting contents is displayed. Click **Next**. Installation starts.


Start Copying Files
Setup has enough information to start copying the program files. If you want to review or change any settings, click Back. If you are satisfied with the settings, click Next to begin copying files.
Current Settings:
Setup Type:
Complete
Target Folder
C:\Program Files\Key Config
User Information
Name: SD-DOC
Company: SEIKO EPSON
InstallShield
< Back
Next >
Cancel

6. Upon completion of the installation, the Setup Complete dialog box is displayed. Click **Next**.

Keyboard Firmware Setting Utility (for Windows XP/2000/NT/98)

The keyboard firmware setting utility for Windows XP/2000/NT/98 changes keyboard firmware. This utility is used to change the MSR settings.

Start

The keyboard firmware setting utility (PKMODE32.EXE) is stored in the following directory by default.

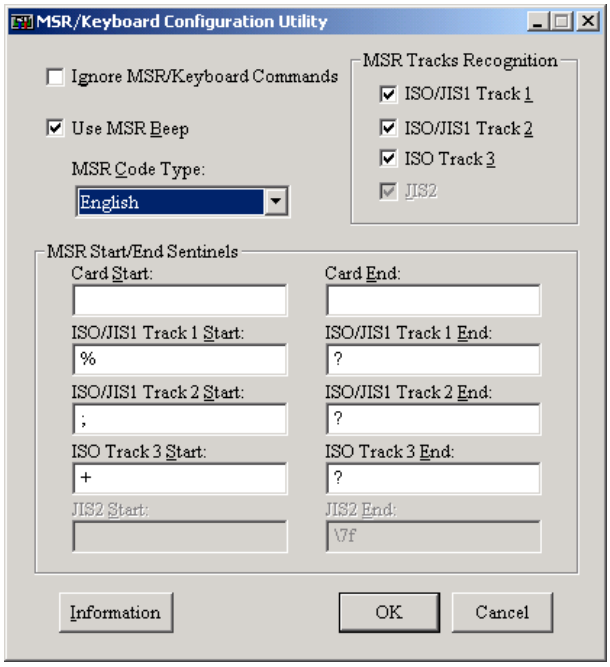
```
C:/Program Files\Key Config\
```

Start the keyboard firmware utility in either of the following ways.

- ❏ Double-click PKMODE32.EXE from Windows Explorer.
- ❏ Select Keyboard Config Utilities and then MSR & Keyboard Configuration Utility from the Program menu.

Note:
This program is also contained on the floppy disk packaged with the MSR unit and the 28-key keyboard unit. Do not use this floppy disk, however, because it is exclusively for the IR-300.

When the program starts, the following screen appears.



The following paragraphs define each item on the screen:

❑ Ignore MSR/Keyboard Command

If this check box is checked, all commands to the keyboard firm are not accepted. Typically, this check box is checked for use with the external programmable keyboard. It has not been checked in the initial setting.

Note:
Be careful that if this check box is checked, this utility cannot be started unless the main body is turned off or reset. To uncheck this check box, reboot the main body, or, alternatively, start this utility with the external keyboard disconnected.

❑ Use MSR Beep

This is used to sound the beep at the time of reading.

❑ MSR Track Recognition (ISO/JIS1 Track 1, ISO/JIS1 Track 2, ISO Track 3)

Check the check box of the track to be read. More than one track may be specified accordingly. Track 1,2 and Track 3 have been selected in the initial setting.

❑ MSR Code Type (English,Japanese,French,German,Spanish)

Selection is made according to the language setting of Windows.

❑ MSR Start/End Sentinels (Card Start, Card End, ISO/JIS1 Track 1 Start, ..., JIS2 Start, JIS2 End)

The characters to be prefixed and affixed to the data during the MSR reading are specified. It is possible to specify this setting for each card and each track. Leave this field blank if no character is to be added. The default settings are as follows:

Track 1 Start: "%" Track 1 End: "?"
Track 2 Start: ";" Track 2 End: "?"
Track 3 Start: "+" Track 3 End: "?"

Use any of the following special characters:

Carriage return:	"\R" or "\r"	
Tab:	"\T" or "\t"	
"\":	"\\"	
Others:	"\xx"	Specified directly with xx, representing character codes as hexadecimals.

OPOS ADK Settings with the DM-MR123

When using the DM-MR123 with the EPSON OPOS ADK, pay attention to the following items.

- ❑ The DM-MR123 is applicable to EPSON OPOS ADK Ver. 1.9x and newer versions. To read the JIS2 card by using the DM-MR123, use EPSON OPOS ADK Ver. 1.9x or newer version.
- ❑ When the DM-MR123 is used as a conventional model (DM-MR111), EPSON OPOS ADK Ver. 1.62 or newer versions can be used. In this case, select the DM-MR111-012 as an applicable model, although, it cannot read the JIS2 card. Also, specify a track that can be read by the Keyboard Firm Setting utility for Windows or the PKMODE2 utility.
- ❑ Select the 101K/B keyboard.
- ❑ To have the JIS2 type card read, set the end flag to Space + Line feed.

  JIS2 End "\20\r"

Key Lock Setting Utility (for Windows XP/2000/NT/98)

The Key Lock Setting utility sets the function of each position of the key lock.

Start

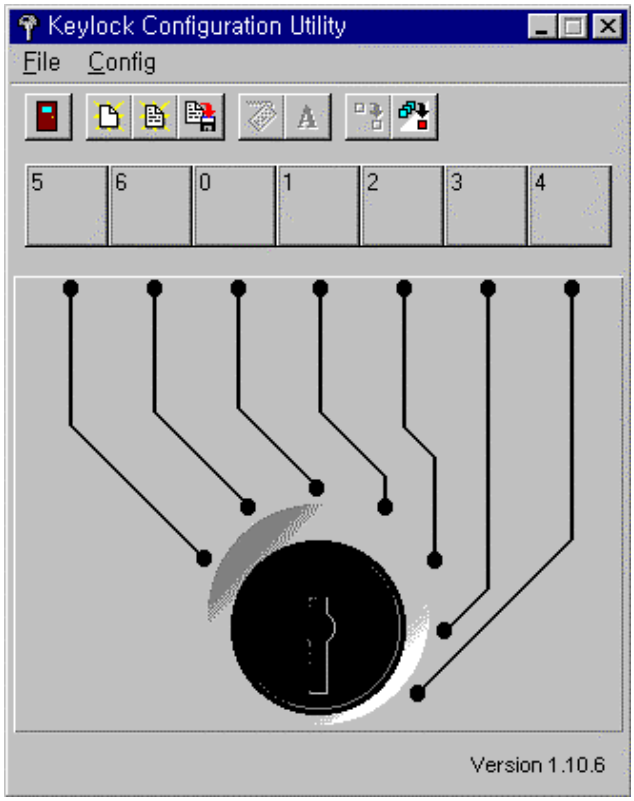
The Key Lock Setting utility (KYLCKCFG.EXE) has been registered in the following directory in the initial setting:

```
C:\Program Files\Key Config\
```

This utility can be started by either of the following methods:

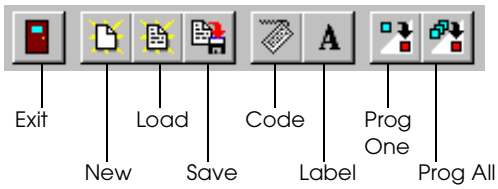
- ❑ Double-click Kylckcfg.EXE on Explorer.
- ❑ Select Keyboard Config Utilities and then Keylock Configuration Utility from the Program menu.

When the program starts, the Startup screen is displayed.



Speed Buttons

The speed button menu, which is composed of eight buttons, is displayed under the title bar of the Key Lock Setting utility. Click these speed buttons to call up the desired function quickly.



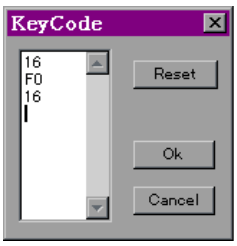
Exit	Exits the Key Lock Setting utility.
New	Clears the button's function and creates a new setting.
Load	Loads a saved setting.
Save	Saves the current setting.
Code	Opens the KeyCode dialog box.
Label	Opens the KeyLabel dialog box.
Prog One	If you click this button while a key is selected, only the code for the selected key is programmed.
Prog All	Programs the settings of all the keys.

Key Definitions

Each key on the screen corresponds with each key position of the manager key. For defining each key, use the following procedure:

1. Click the key you want to set to use this code, and it becomes selected. (Clicking it again cancels the selection.)

2. Click **Code**, and open the KeyCode dialog box.



3. Input the code for the selected key from the keyboard. This code can be up to a maximum of 63 bytes.

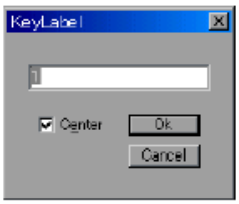
4. If you click **OK**, the setting becomes valid, and the key dialog box is closed. If you click **Cancel**, the setting is canceled. If you click **Reset**, the code is cleared.

Setting the Key Label

Use the following steps to set the key label displayed on the key position button.

1. Click the key you want to label, and it becomes selected.

2. If **Label** is clicked, the KeyLabel dialog box is opened.



3. Input any characters as the label.

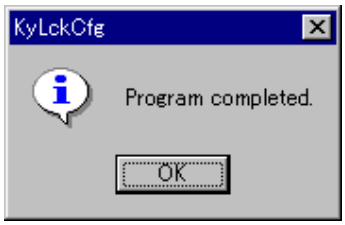
4. If you click **OK**, the input characters are displayed on the button, and the KeyLabel dialog box closes. If you click **Cancel**, the input characters are canceled. Up to 20 characters can be input. "|" is regarded as a new line.

Key Program

To assign a setting to an actual key, you need to run the program. Run the program by either of the following methods:

- ❑ Click **Prog One** while a button is selected. Only the selected key is programmed.
- ❑ Click **Prog All**. All the keys are programmed.

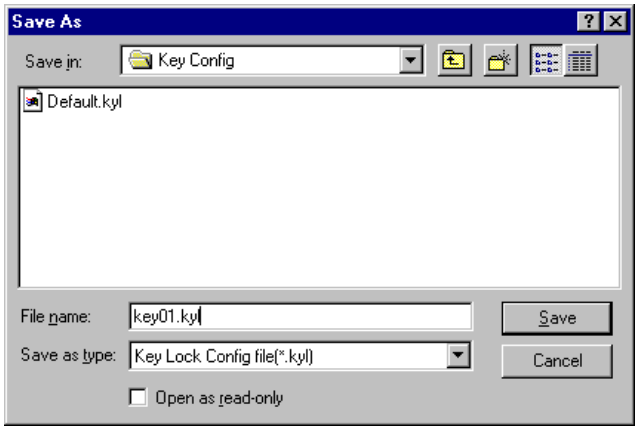
If the program ends correctly, the following dialog box is displayed.



Saving the Settings

Save the current settings as a file with the following steps.

1. If you click **Save**, the Save As dialog box is displayed.



2. If you input a file name and click **Save**, the settings are saved in a file. Use the file extension .kyl.

Loading the Settings

Load the settings as follows.

1. If you click **Load**, the Open dialog box is displayed.

2. If you select a file name and click **Open**, the selected setting is loaded.

New

To clear the current settings and create new settings, click **New**. All the key settings are cleared.

Exit

If you click **Exit**, the key lock setting utility is exited.

28-Key Definition Utility (for Windows XP/2000/NT/98)

The 28-Key Definition utility can define the keys of the 28-key keyboard unit connected to the IR-320 in Windows.

For information on definable keys, see the table "Definable keys" on page 4-23.

Note:
When using this utility, observe the following:

The **Shift**, **Ctrl**, *or* **Alt** *keys cannot be registered alone, but they can be registered in combination with other keys.*

Pressing the **Windows**, **Menu**, *or* **Print Screen** *keys is specially treated on the system, and, therefore, these keys cannot be registered alone.*

Concurrent pressing of **Ctrl**+**Alt**+**Del**, **Ctrl**+**Esc,** *or* **Alt**+**Tab** *cannot be defined.*

Any other key definition utility cannot be programmed together with this utility.

Do not operate the mouse, the touch panel, the keyboard, or any other inputting device while the program of this utility is being executed.

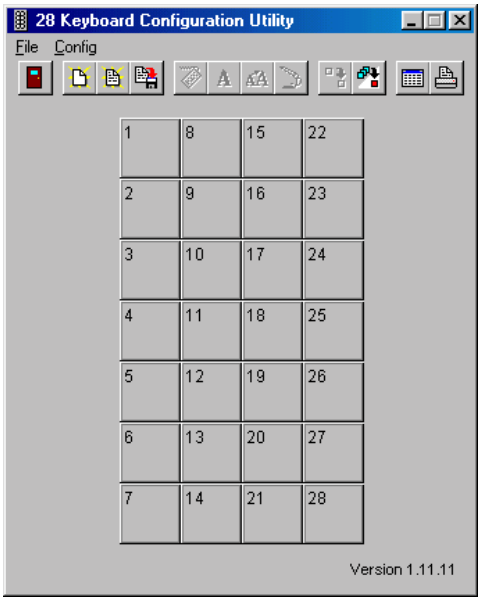
Startup

The 28-Key Definition utility (28KEYCFG.EXE) has been copied in the directory as specified in the installation procedure. (If the directory is not specified, this utility is copied in the c:\Program Files\Key config directory.)

This utility can be started by either of the following methods:

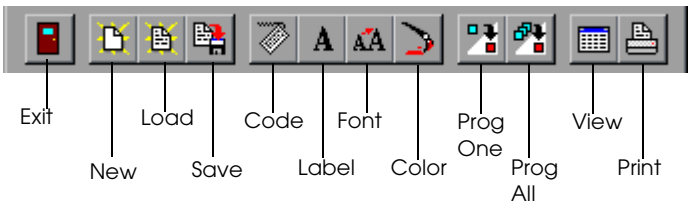
- ❏ Double-click 28KEYCFG.EXE in Windows Explorer.
- ❏ Select Keyboard Config Utilities and then 28 Keyboard Configuration Utility from the Program menu.

When the program starts, the Startup screen is displayed.



Speed Button

The speed button menu, which is composed of 12 buttons, is displayed under the title bar of the 28-Key Definition utility. The function to be executed can be quickly called by pressing this speed button.



Exit	Exits the 28-Key Definition utility.
New	Clears the button's function and creates a new setting.
Load	Loads a saved setting.
Save	Saves the current setting.
Code	Opens the KeyCode dialog box.
Label	Opens the KeyLabel dialog box.
Font	Opens the Font dialog box.
Color	Opens the Color Specification dialog box
Prog One	Programs only the code for the selected key when this button is clicked while a key is selected.
Prog All	Programs the settings of all the keys.
View	Opens the Key View window, and displays the key top.

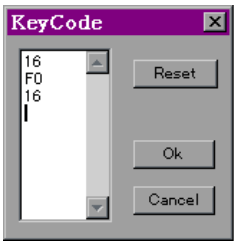
Print Displays the Print dialog box.

Key Definitions

Each key on the screen corresponds with the actual key-top of the keyboard unit. For defining the key top, use the following procedure:

1. Click the key you want to set to use this code, and it becomes selected. (Clicking it again cancels the selection.)

2. Click **Code**, and open the KeyCode dialog box.



3. Input the code for the selected key from the keyboard. This code can be up to a maximum of 63 bytes.

   When you select a key, if you hold down **Shift** and click the key immediately to the right of or immediately below the selected key, the two keys are connected. By repeating this procedure, a number of keys can be connected to create one large key. If you press **Shift** while the connected key is selected, the connection is canceled.

4. If you click **OK**, the setting becomes valid, and the key dialog box is closed. If you click **Cancel**, the setting is canceled. If you click **Reset**, the code is cleared.

Setting the Key Label

Use the following steps to set the key label displayed on the key position button.

1. Click the key you want to label, and it becomes selected.

2. If **Label** is clicked, the KeyLabel dialog box is opened.

3. Input any characters as the label.

4. If you click **OK**, the input characters are displayed on the button, and the KeyLabel dialog box closes. If you click **Cancel**, the input characters are canceled. Up to 20 characters can be input. "|" is regarded as a new line. When the Center check box is checked, the inputted character is displayed on the key top in the centered position.

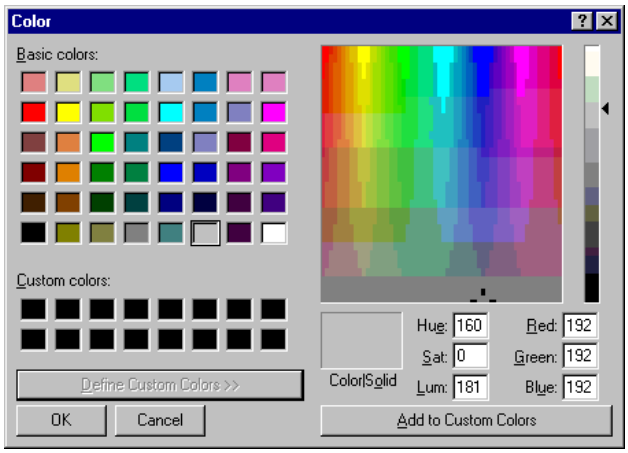
Setting the Key Top Color

For setting the key top color, use the following procedure:

1. Click the key to be set on key top color to make it ready for setting.
2. Click **Color**. The Color dialog box is displayed.

3. Set the key top color by clicking the color to be set from the color palette, and click **OK**.

4. To set any color other than the basic colors as a key top color, click **Define Custom Colors**. Drag the mouse on the color slider, and select the color. Alternatively, enter the numeric value, and click **Add to Custom Colors**. Then, the created color is additionally displayed on the Custom colors color palette. Select the color, and click **OK**.



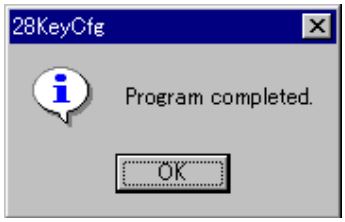
5. When **OK** is clicked, the key is redrawn in the selected color, and the Color dialog box is closed. When **Cancel** is clicked, the selected color is cancelled.

Key Program

To assign a setting to an actual key, run the program by either of the following methods:

- ❑ Click **Prog One** while a button is selected. Only the selected key is programmed.
- ❑ Click **Prog All**. All the keys are programmed.

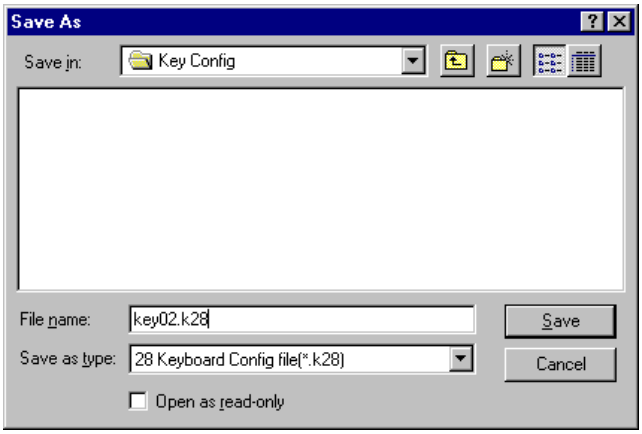
If the program ends correctly, the following dialog box is displayed.



Saving the Settings

You can save the current settings as a file with the following steps.

1. If you click **Save**, the Save As dialog box is displayed.



2. If you input a file name and click **Save**, the settings are saved in a file. Use the file extension .k28.

Loading the Settings

Load the settings as follows.

1. If you click **Load**, the Open dialog box is displayed.

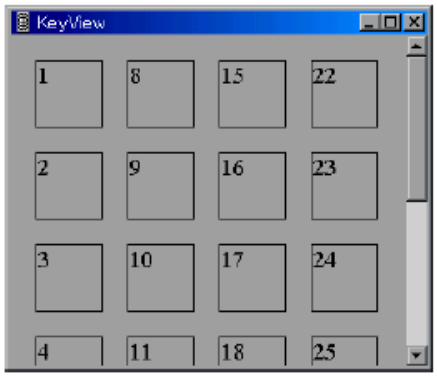
2. If you select a file name and click **Open**, the selected setting is loaded.

New

To clear the current settings and create new settings, click **New**. All the key settings are cleared.

Displaying the Key Top

When **View** is clicked, the Key View window opens, so that the key top label and colors can be confirmed. To close this window, click the **X** on the right end of the title bar.



Exit

When **Exit** is clicked, the 28-Key Definition utility is exited.

List of Definable Keys

Following is a list of definable keys for the supplied utilities. "Yes" means "can be defined"; "No" means "cannot be defined" in the table below.

Definable keys

Utility	**28KEYCFG.EXE**			
OS	Windows XP/2000/NT/98			
Language	Any language			
Keyboard	101, 102, 106 series			
Keys that cannot be defined, depending on OS	Print Screen, Scroll Lock, Pause, Num Lock, Caps Lock, Windows, Shift, Alt, Ctrl, Menu, Ctrl+Alt+Del, Alt+Esc, Alt+Tab, Ctrl+Esc			
Limits on key combinations	**Single**	**Shift**	**Ctrl**	**Alt**
Esc	Yes	Yes	No	No
Fn (Function Key)	Yes	Yes	Yes	Yes
1 3 4 5 7 8 9 0	Yes	Yes	Yes	Yes
2 6	Yes	Yes	Yes	Yes
a - z	Yes	Yes	Yes	Yes
Tab	Yes	Yes	Yes	No
BS	Yes	Yes	Yes	Yes
Space	Yes	Yes	Yes	Yes
Enter	Yes	Yes	Yes	Yes
- ( ) ¥	Yes	Yes	Yes	Yes

Definable keys (continued)

= ; ' ` , . /	Yes	Yes	Yes	Yes
Ins	Yes	Yes	Yes	Yes
Del	Yes	Yes	Yes	Yes
Home	Yes	Yes	Yes	Yes
End	Yes	Yes	Yes	Yes
PageUp	Yes	Yes	Yes	Yes
PageDown	Yes	Yes	Yes	Yes
↑	Yes	Yes	Yes	Yes
↓	Yes	Yes	Yes	Yes
→	Yes	Yes	Yes	Yes
←	Yes	Yes	Yes	Yes
/ * (Ten key)	Yes	Yes	Yes	Yes
- + (Ten key)	Yes	No	Yes	Yes
Enter (Ten key)	Yes	Yes	Yes	Yes
0 . 1 2 3 4 5 6 7 8 9 (Ten key)	Yes	No	Yes	Yes

Layer 28-key Keyboard Definition Utility (for Windows XP/2000/NT and Windows 98)

This utility is a utility for connecting the 28-key keyboard unit (DM-KR028) to the IR-310/320 and using the layer function.The layer function divides the key definitions for the 28 keys of the 28-key keyboard unit into units called layers, makes it possible to define multiple layers and thus enables the user to make (28 keys x number of layers) key definitions. Multiple layers can be switched instantaneously through the layer change key or through software, enabling input from more than 28 keys.

There are two versions of the Layer 28-key Keyboard Definition Utility, for Windows95/98 and Windows NT/2000.

The layer 28-key keyboard definition utility has not been installed in the products. If you want this software, contact your EPSON distributor.

Outline

What is the Layer Function?

A maximum of 28 keys could be programmed in the 28-key keyboard, but the key definitions varied depending on the application that was being run. If defining of more than 28 keys was desired, it was necessary to judge the input status in the application and switch the key inputs.

Then, by enabling definition of the 28 keys in so-called layer units, and making it possible to define multiple layers, (28 keys x number of layers) could be defined enabling key input from more than 28 keys. This is the layer function.

There are two methods of switching layers instantaneously.

Changing layers using the Change Layer Key (Shift key type)

A key is defined in advance for switching to each layer, with the specified layer activated while that key is pressed, then key data for the specified layer being input by pressing keys while in that state.
Using this method, it is not necessary for the application to be aware of the layer status.
The shift key type defines a specific key, such as the computer's **Shift** key or **Ctrl** key, as the change layer key. Layers are then changed only while that key is being pressed, with the layer returning to "Layer 0" when it is released.

Changing Layers using Software

Software functions include the layer status read function and the layer setting function. When the application switches to the specified layer, the key data for the specified layer are input when the keys are pressed. In this case, management of the layers is all performed by the application, and the current layer is maintained until the application changes layers.

Note:

- Do not use the above 2 methods simultaneously. Using them at the same time may cause differences between the key definition recognized by the application and the actual input.

Layer Function Specifications

Number of Layers : *4 Layers (Layers No. 0 - 3)*

Number of Defined Data : *Maximum 63 data items (per key, per layer)*

Default Layer : *Layer 0 (when starting)*

Layer Switching Method : *Shift key type*

Change Layer Key : *It is possible to set a single change layer key for each layer (a total of 3 keys). If multiple change layer keys are pressed at the same time, the change layer key that was pressed last becomes the enabled key.*

Notes:

- The layer returns to Layer 0 when the change layer key is released after being pressed. In the case of changing a layer other than 0 using the software, as the same method, it returns to Layer 0 without returning the layer set with the software.
- In case multiple change layer keys are pressed, when any change layer keys are released, the layer returned 0 not to change the layer is pressing. Under this case, when the layer is changed using the software, it returned Layer 0 at the same time of other change layer keys are released.
- In the previous 28-key definition utility and 84-key definition key, keys are defined with respect to Layer 0 (when starting), so if a layer other than Layer 0 is set, keys are not input.
- The KeyLock key can be operated without relation to the layer function.
- If the layer function is not being used, use the layer 28-key definition utility and leave the change layer keys unset.

Software Configuration

Layer 28-key Definition Utility :*28KYCFGL.EXE*

Layer 28-key Auto Definition Utility for Windows : *PKLDL32.EXE*

Layer 28-key Auto Definition Utility for MS-DOS : *PKLDL.EXE*

Layer Switching and Reading Library (Windows edition)

Note:
There is no layer version of the 28-key definition utility for DOS.

Installation Procedure

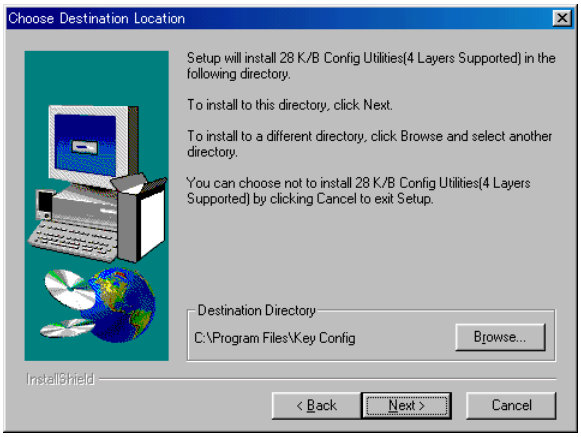
Note:
This explanation is for Windows 2000. ?For Windows NT is a same operation step. ??For Windows 95/98 differs some part of the steps, so they are explained later.

Install this utility by the following procedure.

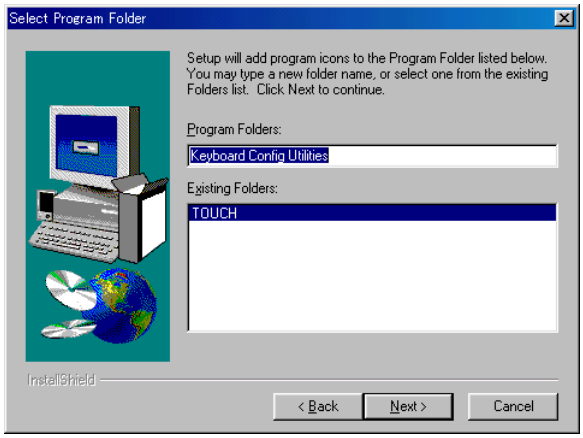
1. Double click on SETUP.EXE to start installation.

2. The Welcome dialog box is displayed. Confirm the contents, then click the **Next** button.

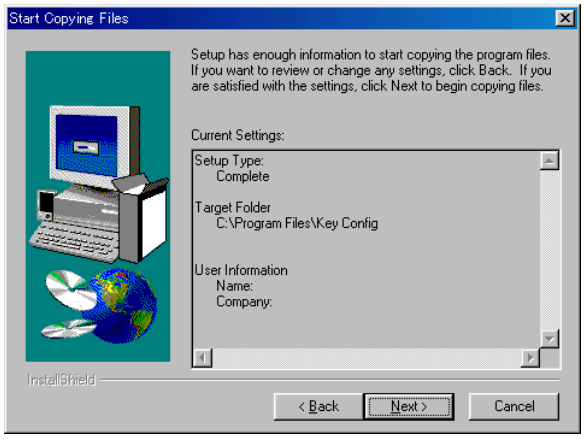
3. The Choose Destination Location dialog box is displayed. Confirm the installation destination folder, the click the **Next** button. C:\Program Files\28 KB Config(4L)\ is set as the default. This can be changed if necessary.


Choose Destination Location
Setup will install 28 K/B Config Utilities(4 Layers Supported) in the following directory.
To install to this directory, click Next.
To install to a different directory, click Browse and select another directory.
You can choose not to install 28 K/B Config Utilities(4 Layers Supported) by clicking Cancel to exit Setup.
Destination Directory
C:\Program Files\Key Config
Browse...
InstallShield
< Back
Next >
Cancel

4. The Select Program Folder dialog box is displayed. Confirm the program folder name, then click the **Next** button. 28 KB Config Utilities(4L) is set as the default. This can be changed if necessary.


Select Program Folder
Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing Folders list. Click Next to continue.
Program Folders:
Keyboard Config Utilities
Existing Folders:
TOUCH
InstallShield
< Back
Next >
Cancel

5. The Start Copying Files dialog box is displayed. Confirm the contents, then click the **Next** button.


Start Copying Files
Setup has enough information to start copying the program files. If you want to review or change any settings, click Back. If you are satisfied with the settings, click Next to begin copying files.
Current Settings:
Setup Type:
Complete
Target Folder
C:\Program Files\Key Config
User Information
Name:
Company:
InstallShield
< Back
Next >
Cancel

6. Installation begins.

Windows XP/2000/NT

7. The Setup Complete dialog box is displayed. Select "Yes, I want to restart my computer now." , and click the [Finish] button to restart the windows.

Windows 98

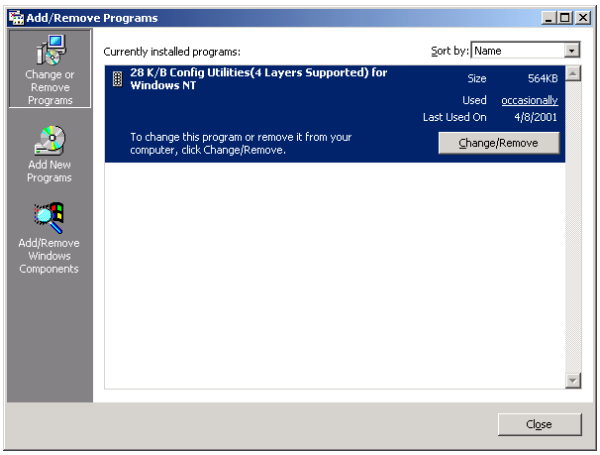
7. The Setup Complete dialog box is displayed. Click the **Finish** button to end the installation.

Uninstall Procedure

Uninstall this utility by the following procedure.

1. Open the Control Panel.
2. Double click on Add/Remove Programs.
3. Click the Install/Remove tab then select 28K/B Config Utilities (4 Layers Supported) for Windows NT from the list box.

Windows XP/2000/NT

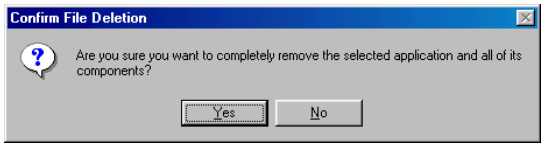


Windows 98

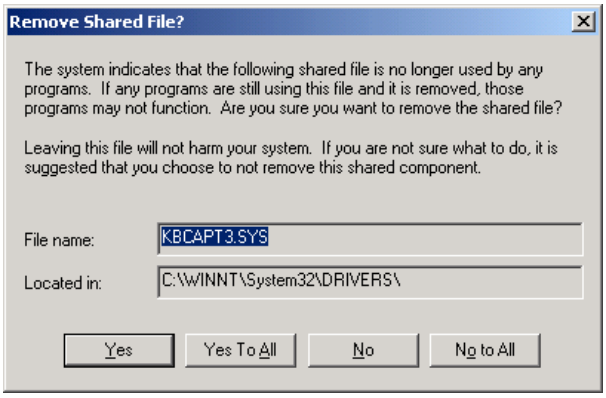
Add/Remove Programs Properties
Install/Uninstall
Windows Setup
Startup Disk
To install a new program from a floppy disk or CD-ROM drive, click Install.
Install...
The following software can be automatically removed by Windows. To remove a program or to modify its installed components, select it from the list and click Add/Remove.
28 K/B Config Utilities(4 Layers Supported) for Windows 9x
Add/Remove...
OK
Cancel
Apply

4. Click the **Add/Remove** button.

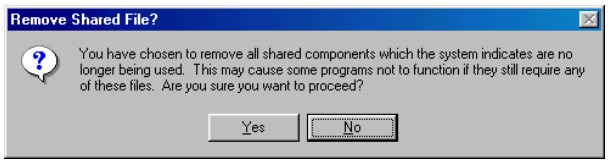
5. The Confirm File Deletion dialog box is displayed. Click the **Yes** button.


Confirm File Deletion
Are you sure you want to completely remove the selected application and all of its components?
Yes
No

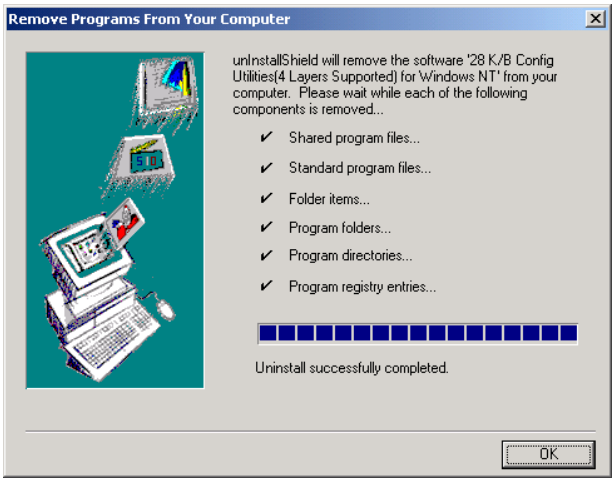
6. If the following dialog box is displayed and you are asked to confirm whether to delete shared files, click the **Yes to All** button.


Remove Shared File?
The system indicates that the following shared file is no longer used by any programs. If any programs are still using this file and it is removed, those programs may not function. Are you sure you want to remove the shared file?
Leaving this file will not harm your system. If you are not sure what to do, it is suggested that you choose to not remove this shared component.
File name:
KBCAPT3.SYS
Located in:
C:\WINNT\System32\DRIVERS\
Yes
Yes To All
No
No to All

7. If the following dialog box is displayed asking you to reconfirm whether to delete the shared files, click the **Yes** button.


Remove Shared File?
You have chosen to remove all shared components which the system indicates are no longer being used. This may cause some programs not to function if they still require any of these files. Are you sure you want to proceed?
Yes
No

8. The following dialog box is displayed, and the uninstall process is completed. Click the **OK** button.


Remove Programs From Your Computer
unInstallShield will remove the software '28 K/B Config Utilities(4 Layers Supported) for Windows NT' from your computer. Please wait while each of the following components is removed...
Shared program files...
Standard program files...
Folder items...
Program folders...
Program directories...
Program registry entries...
Uninstall successfully completed.
OK

Setting the Utility

Layer 28-key Definition Utility

The Layer 28-key Definition Utility can define the keys of the 28-key keyboard unit in Windows. Setting of codes for the 28-key keyboard can be done for layers 0~3, a total of 4 layers.

Notes:

❑ Be careful of the following points when using this utility.

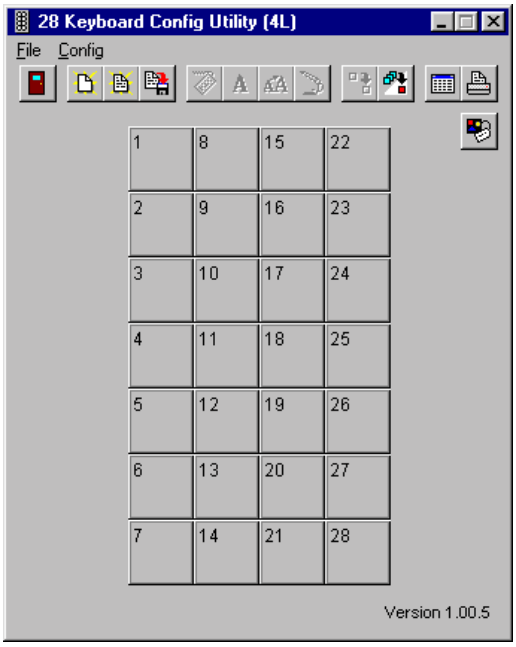
- The ***Shift***, ***Ctrl*** and ***Alt*** keys cannot be registered independently. Register them in combination with other keys.
- The ***NumLock***, ***ScrollLock***, ***Pause*** and ***CapsLock*** keys cannot be registered.
- Pressing of the ***Windows*** key, ***Menu*** key and ***Print Screen*** keys is handled specially by the system, so these keys cannot be registered independently.
- The ***Ctrl+Alt+Del***, ***Ctrl+Esc***, ***Alt+Esc*** and ***Alt+Tab*** keys pressed simultaneously cannot be defined.
- This utility cannot be run simultaneously with other key definition utilities such as "28keycfg.exe".
- Do not operate the mouse, touch panel, keyboard or other input device while this utility program is running (while definition data are being written).
- The file extension is ".L28". The format of this utility is not compatible with the file format of the previous 28-key definition utility.

Starting

The 28-key definition utility (28KYCFGL.EXE) is copied to the directory specified during installation. The utility is copied to C:\Program Files\28 KB Config(4L) if a directory is not specified. This utility is started by either of the following two methods.

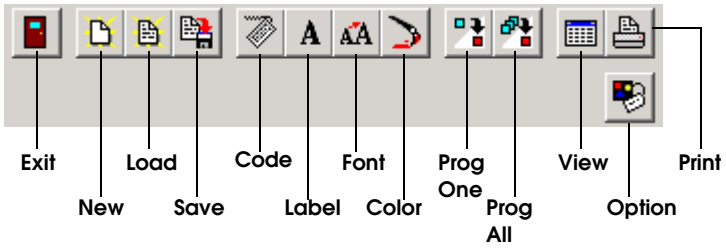
- ❏ Select 28KYCFGL.EXE in Windows Explorer and run it.
- ❏ Select [**28 KB Config Utilities(4L)**] - [**28 KB Config Utility (4 Layers Supported)**] in the Programs menu.

The following starting screen is displayed when the program starts.



Speed Buttons

The speed buttons, configured from 13 buttons, are displayed under the title bar. Clicking these speed buttons enables the desired function to be called up immediately.



Exit Closes the utility.

New Clears the button's setting and creates a new setting.

Load Reads the stored settings.

Save Saves the current settings.

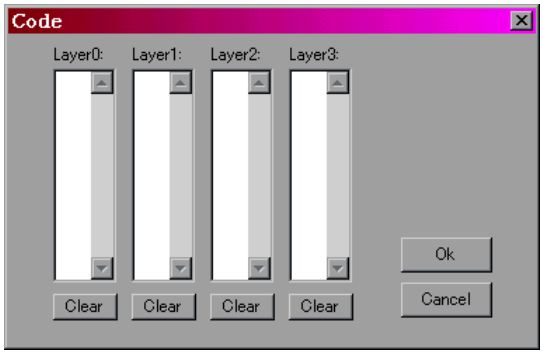
Label	Opens the Label dialog box.
Code	Opens the Code dialog box.
Font	Opens the Font dialog box.
Color	Opens the color specification dialog box.
Prog One	When a button is selected, clicking this button causes only the key corresponding to the selected button to be programmed.
Prog All	The settings of all the buttons are programmed.
View	Opens the View window and displays the key tops.
Print	Displays the Print dialog box.
Option	Displays the Option dialog box.

Key Definitions

Each key on the screen corresponds to an actual key top on the keyboard unit. Key tops are defined by the following procedure.

1. Select the key which you would like to set the code for. Clicking it once more cancels the selection.

2. The Code dialog box opens when the **Code** button is clicked.



3. Select the list box with the layer name where the key code is to be set by clicking it with the mouse.

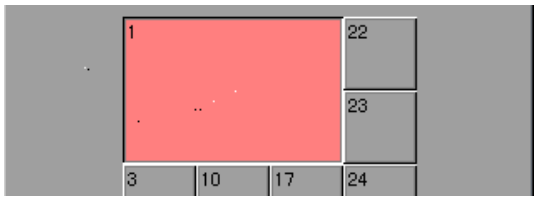
4. Input the code to be set for the selected key from the keyboard. A code with a length of up to 63 bytes can be input.

5. Repeat the same procedure, inputting the codes to be set for the keys in each layer.

6. Clicking the **OK** button enables the settings and closes the Code dialog box. Clicking the **Cancel** button cancels the settings. Clicking the **Clear** button clears the code input up to that point.

Linking with Keys

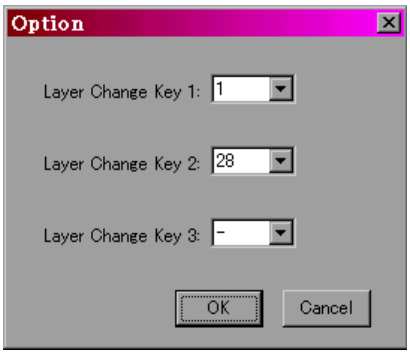
When a key is selected, if the key to the right or directly below that key is selected while the Shift key is pressed, those two keys are linked. By repeating this operation, multiple keys can be linked, enabling the creation of a large key. When a linked key is selected, if the selected key is selected again while the Shift key is pressed, the link is cancelled.



Defining Change Layer Keys

Define change layer keys by the following procedure.

1. Click the **Option** button to open the Option dialog box.



2. The change layer keys for each respective layer, 1 to 3, can be set in the 3 drop down lists in the dialog box. Select the number of the key that is to be used as the change layer key from the drop down list. The change layer key is not set if "-" is selected.

Note:

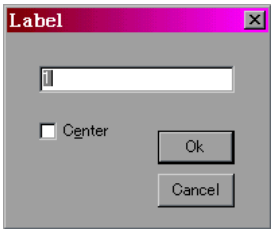
❑ The key set as the change layer key cannot be used for code input or by itself in programming.

Setting Key Labels

Set the key labels displayed on the keytops by the following procedure.

1. Select the key that the key label is to be set for.

2. The Label dialog box opens when the **Label** button is clicked.



3. Input the desired characters.

4. Clicking the **OK** button displays the input characters on the keytop and closes the dialog box. Clicking the **Cancel** button discards the input characters. Up to 20 characters can be input. A "|" is regarded as the starting point of a new line.
If the [Center] check box is checked, the displayed input characters are arranged around the center of the keytop.

Setting the Keytop Color

Set the keytop color by the following procedure.

1. Select the key that the color is to be set for and activate it.

2. Clicking the **Color** button displays the color dialog box.

3. Set the keytop color. Select the color to be se from the color palette.

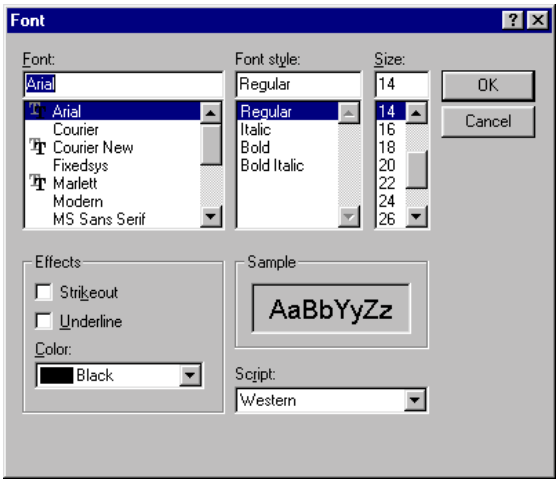
4. Clicking the **OK** button causes the key to be redrawn in the selected color and closes the Color dialog box. Clicking the **Cancel** button discards the selected color.

Setting the Font

Set the font by the following procedure.

1. Select the key that the font is to be set for and activate it.

2. Clicking the **Font** button displays the Font dialog box.



3. Set the font.

4. Clicking the **OK** button sets the selected font. Clicking the **Cancel** button discards the selected font.

Programming Keys

To assign settings to the actual keys, it is necessary to program them. Program the keys by either of the following methods.

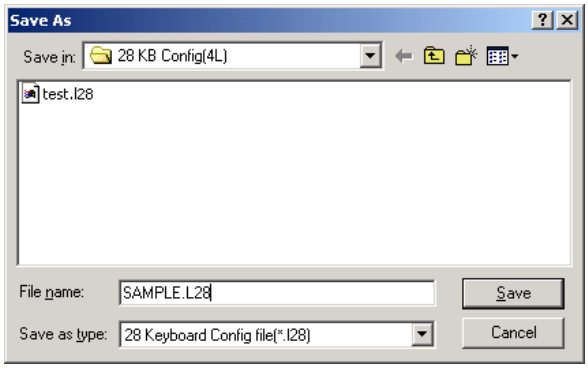
- ❑ While a key is in the selected state, click the **Prog One** button. Only the selected key is programmed.
- ❑ Click the **Prog All** button. All the keys are programmed.

The following dialog box is displayed if the programming ends normally.

Saving the Settings

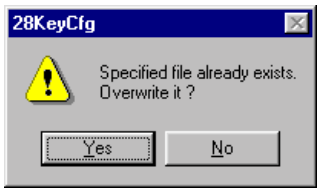
The current settings can be saved as a file. Save the settings by the following procedure.

1. Clicking the **Save** button displays the "Save as..." dialog box.



2. Input the file name and click the **Save** button to save the settings in a file. Be sure to specify ".L28" as the file extension.

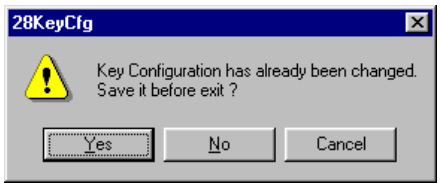
3. The following dialog box is displayed if a file with the same name as the specified file already exists. Clicking the **Yes** button overwrites the existing file. Clicking the **No** button cancels the save operation.



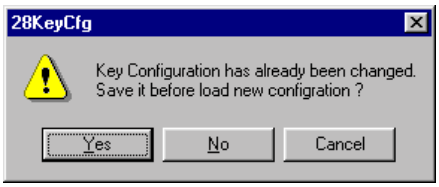
Notes

- If the **Exit**, **New** or **Load** button is clicked while the settings are changed but have not been saved, the dialog boxes shown below are displayed, and confirmation of whether or not to save the current settings is requested. Clicking the "Yes" button opens the Save dialog box. Clicking the "No" button discards the current settings and causes processing to resume. Clicking the "Cancel" button returns the program to the previous state.

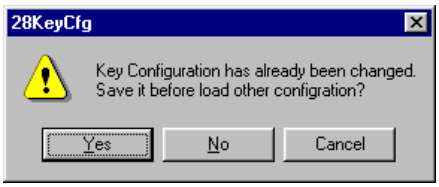
If the Exit button is clicked



If the New button is clicked



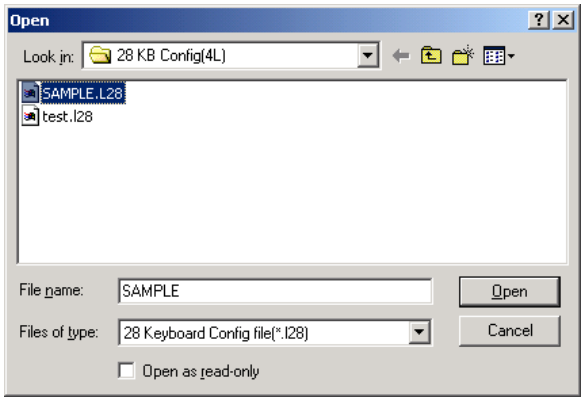
If the Load button is clicked



Reading the Settings

Read the saved settings by the following procedure.

1. Clicking the **Load** button displays the Open File dialog box.



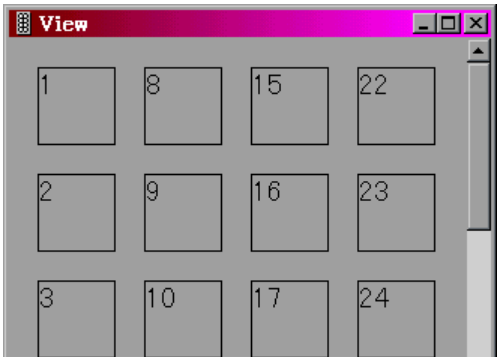
2. Select the file name, then click the **Open** button to read the selected settings.

Creating New Settings

Click the **New** button to clear the settings used up to the present and set new settings. All the key settings are cleared.

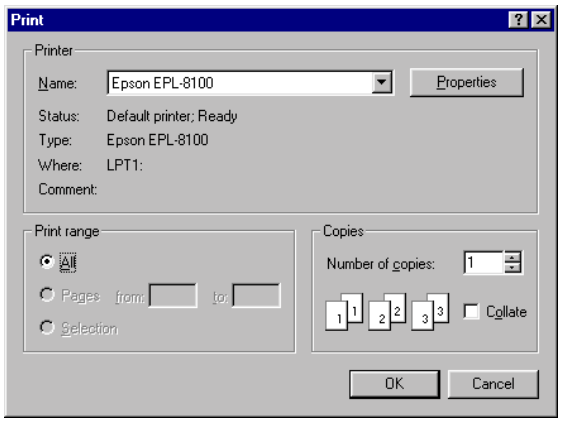
Displaying the Keytops

Clicking the **View** button opens the View window and enables the keytop labels, colors and fonts, etc. to be confirmed. Close the window by clicking the **X** button on the right end of the title bar.



Printing the Keytops

Clicking the **Print** button opens the Print dialog box. Click the **OK** button to start printing.



Close

Clicking the **Exit** button closes the Layer 28 Definition Utility.

Layer 28-key Auto Definition Utility for Windows

Function

This utility loads definition files created by the Layer 28 Keyboard Definition Utility. It is used for batch processing, etc.

Starting

The Layer 28-key Auto Definition Utility for Windows (PKLDL32.EXE) is copied to the directory specified during installation.
The utility is copied to **C:\Program Files**\28 KB Config(4L) if a directory is not specified. This utility is started by the following method.

❑ Input the following at the command prompt.

[Path] PKLDL32 Filename [/n]

File Name: This is the path name of the set file ("* * * .l28").

/n: If the n option is specified, the following dialog box is displayed during closing.

A dialog box that shows the status during transfer of the settings is displayed. The following contents are displayed in the dialog box. nn is the layer No. or the key No., and rr is the number of retries, up to a maximum of 6 times.

Switching layers Now switching to layer #nn(xrr)...
Setting 28 keys Now Programming keyboard #nn(xrr)...
Setting Change Layer key
Now Programming layer change key #nn(xrr)...

Notes

- ❑ This utility is available in an English message version only.
- ❑ This utility cannot be used during programming with 28keyCfg. or other key definition utility.
- ❑ The keyboard and mouse do not respond during reading or writing of the settings.
- ❑ As much as possible, do not perform any operations that would generate an interrupt, such as tapping the touch panel, during reading or writing of the settings.

The Layer 28-key Auto Definition Utility for MS-DOS

Outline

This is a MS-DOS utility that loads definition files created with the layer 28 keyboard definition utility. It is used when performing batch processing, etc.

Command

Execute commands in the following format.

```
PKLDL.EXE data-file
```

Processing Details

This utility sets the following data automatically.

- Saved Layer 28-key Auto Definition Utility for Windows files (.L28).

This utility is not compatible with the following data.

- Saved Windows 84-key Definition files (.K84)
- Saved Windows 28-key Definition files (.K28)

- Saved Windows KeyLock Definition files (.KYL)
- Scan code table rewrite files for MSR (.PKL)

Checking of the validity of a specified file is done by the file extension, so be sure to specify the file extension precisely.

Notes

- ❑ This utility starts and runs in MS-DOS. (It cannot be run from the DOS box.)
- ❑ This utility uses the keyboard interface for communications with the firmware. For that reason, do not use an external keyboard, the 28-key keyboard, KeyLock or MSR during execution. Errors will occur if these are operated during data communications, and it may stop running normally.
- ❑ Do not press Reset or turn the power off while this utility is running.

Messages

Message	Content
EPSON Layer Keyboard Auto Definition Utility Vx.xx.xx	When started
Usage: PKLDL data-file data-file: definition data file .L28 :Layer 28Key definition data	Usage
EPSON Layer Keyboard Auto Definition Utility Vx.xx.xx Now transfer 28Key Definition data	28-key definition data transfer

Error Message	Content
Firmware version is not correct	The firmware version is incorrect.
Invalid parameter	An invalid parameter was specified.
Firmware communication error	Firmware communications failed.
File access error : No such file or directory	File access failed.

End Codes

End Code	Content
0	Normal end.
10	The firmware version is incorrect. Or, it was executed at another PC (abnormal end).
11	Parameter error (abnormal end).
14	An error occurred in communications with the firmware (abnormal end).
20	An error occurred during file access (abnormal end).
21	There was an error in the file's data format (abnormal end).

Layer Change / Reading Library

Function

This library offers functions that is necessary when using the layer function.

Functions

int Select28KeyLayer(int layer)

[Function] Switches the layer that is currently in use.

[Argument] Specifies the number of the layer from 0 to 3 to use, or default layer (0x0f).

[Return Values]
0 : Normal End
-20 : Communications error
-21 : Opening error
-22 : Argument error

int GetCurrent28KeyLayer(void)

[Function] Acquires the layer that is currently in use.

[Argument] None

[Return Value]
0 to 3 : The currently selected layer No.
-20 : Communications error
-21 : Opening error

Notes

- ❑ Copy LYFUNC.DLL and PKFUNC.DLL to the same folder as the application program.
- ❑ This library cannot be used during programming with 28keyCfg., etc.
- ❑ The keyboard and mouse do not respond during reading or writing of the settings.
- ❑ Do not perform any operations that would generate an interrupt, such as tapping the touch panel, during reading or writing of the settings.

84-key Configuration Utility (for Windows XP/2000/NT/98)

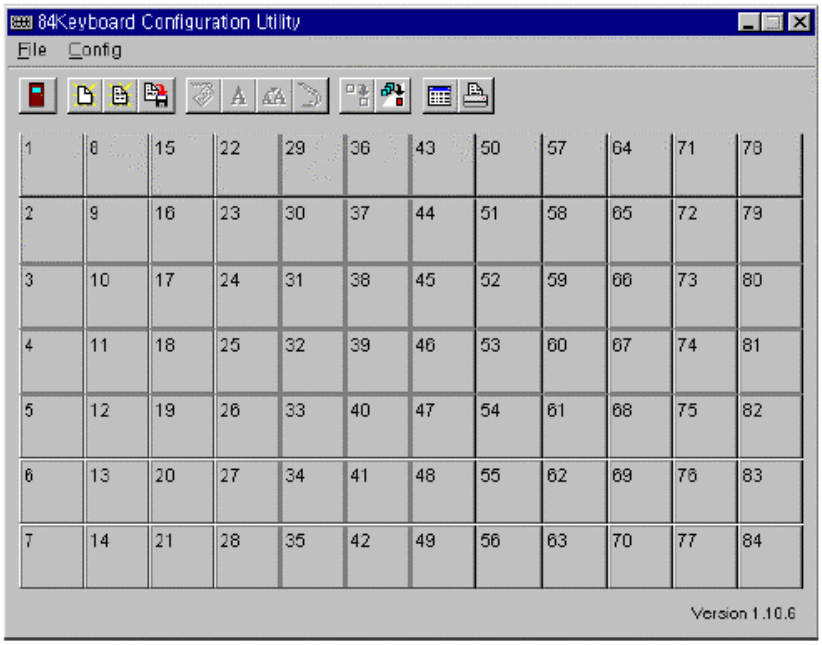
Start

By default, the 84-key configuration utility is stored in the following directory on the hard disk:

```
C:\Program Files\Key Config\84keycfg.exe
```

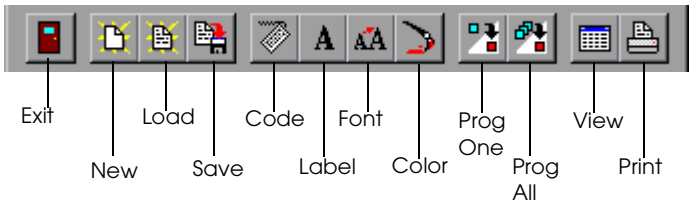
You can start the 84-key configuration utility by double-clicking this file in Windows Explorer or by selecting **`Program`** → **`Key Configuration Utilities`** → **`Configure 84 Keyboard`** from the menu.

When the program starts, the following screen is displayed.



Speed Buttons

Eleven speed buttons are displayed below the title bar for the 84-key configuration keytop setting program. By clicking these speed buttons, you can call up the desired function quickly.



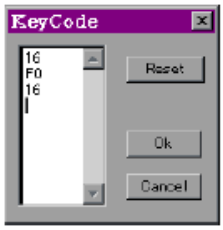
Exit	Exits the 84-key keyboard configuration utility.
New	Clears the button's function and creates a new setting.
Load	Loads a saved setting.
Save	Saves the current setting.
Label	Opens the key label dialog box.
Code	Opens the key code dialog box.
Color	Opens the color dialog.
Prog One	If you click this button while another button is selected, the utility programs only the key for the selected button.
Prog All	The utility programs settings of all the buttons.
View	Opens the key view window and displays the keytops.
Print	Prints the current settings.

Key Definitions

The keys on the screen correspond to the actual keytops on the keyboard unit. You define the keytops using the following steps.

1. Click the key you want to code, and it becomes selected. (Clicking it again cancels the selection.

2. Click the **Code** button to open the key code dialog box.



3. Input the code for the selected key from the keyboard. You can enter a code up to a maximum of 64 bytes.)

   When you select a key, if you hold down the **Shift** key and click the key immediately to the right of or immediately below the selected key, the two keys are connected. By repeating this procedure, a number of keys can be connected to create one large key. If you press the **Shift** key while the connected key is selected, the connection is canceled.

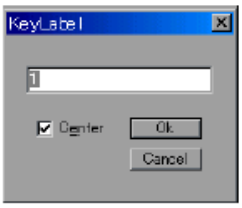
4. If you click the **OK** button, the setting is made and the key code dialog is closed. If you click the **Cancel** button, the setting is canceled. If you click the **Reset** button, the code is cleared.

Setting the Key Label

Use the following steps to label the keytop.

1. Click the key you want to label, and it becomes selected.

2. If you click the **Label** button, the key label dialog is opened.



3. Input any characters as the label.

4. If you click the **OK** button, the input characters are displayed on the button, and the key label dialog closes. If you click the **Cancel** button, the input characters are canceled. Up to 20 characters can be input. "|" is regarded as a new line.

Keytop Color Settings

Use the following steps to set the color of the keytop.

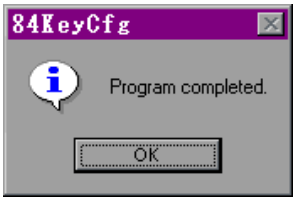
1. Click the key you want to color, and it becomes selected.
2. If you click the **Color** button, the color setting dialog is displayed.
3. Set the color of the keytop. (The color setting dialog uses the standard Windows function. For details, see the Windows manual.)
4. If you click **OK**, the key is redrawn in the selected color, and the color setting dialog closes. If you click the **Cancel** button, the selected color is canceled.

Key Program

To assign a setting to an actual key, you must run this program. You can run the program using either of the following methods.

- ❑ Click the **Prog One** button while the button is selected. Only the selected key is programmed.
- ❑ Click the **Prog All** button. All the keys are programmed.

If the program ends correctly, the following is displayed.



Saving the Settings

You can save the current settings as a file using the following procedure.

1. Click the **Save** button, and the "Save As" dialog is displayed. (This is the standard Windows function. For details, see the Windows manual.)
2. If you input a file name and click the **Save** button, the settings are saved in a file. Use the file extension ".K84."

Loading the Settings

Load the settings using the following procedure.

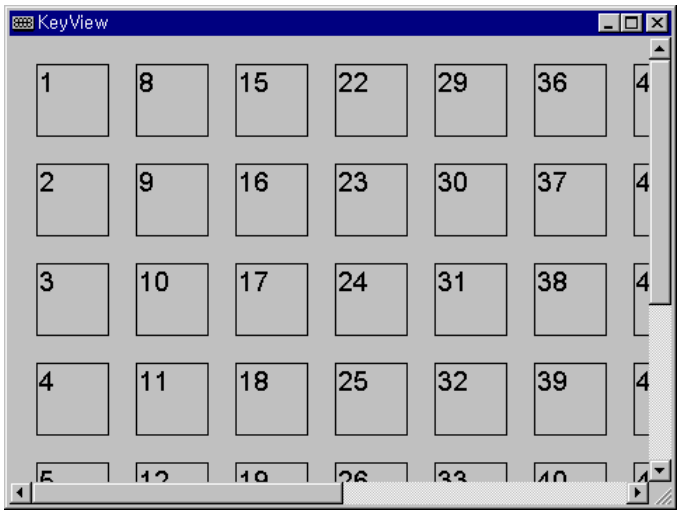
1. If you click the **Load** button, the "Open" dialog is displayed. (This is the standard Windows function. For details, see the Windows manual.)
2. If you select a file name and click the **Load** button, the selected settings are loaded.

New

To clear the current settings and create new settings, click the **New** button. All the key settings are cleared.

Keytop View

If you click the **View** button, the key view window opens to let you confirm the labels and colors of the keytops. You can change the size of the key view window by dragging one of its corners. You can close the window by clicking the **x** button at the right end of the title bar.



Printing the Settings

To print the current settings use the following steps.

1. Click the **Print** button to display the print dialog. (This is the standard Windows function. For details, see the Windows manual.)

2. If you click **OK**, the settings are printed.

Exit

If you click the **Exit** button, the 84-key keyboard configuration utility is exited.

Automatic Definition Data Setting Utility (for Windows XP/2000/NT/98)

Function

When this utility is started, the firmware setting is converted into the setting described in the file, and this utility is terminated.

Startup

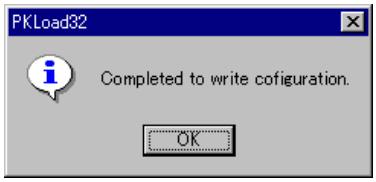
The Automatic Definition Data Setting utility (PKLOAD32.EXE) has been copied in the directory specified in the installation procedure. (If the directory was not specified, this utility has been copied in the c:\Program Files\Key Config directory.)

This utility can be started by the following method:

- ❑ Enter as follows from the MS-DOS prompt:

```
[Path]PKLOAD32 filename [/n]
```

File name:	This is the pas name of the setting file for specifying the 28-key keyboard/key lock setting file for Windows or the setting file for this utility. ("***.k28," "***.kyl" file)
/n:	When the [n] option is specified, the following dialog box is displayed at the time of termination.



While the setting is being transferred, the dialog box indicating the situation is displayed. While the 28-key keyboard/key lock setting file is being transferred, the following is displayed:

```
Writing Configuration #dd-d ...
```

where "dd" is the key number, and "d" is the number of retry times up to six.

While the setting file for this utility (see page 4-49) is being transferred, the following is displayed:

```
Writing Configuration 0xhh-d ...
```

where "hh" is the character code when the MSR character conversion setting is in transfer or the system conversion area is offset in hexadecimal in any other case, and "d" is the number of retry times up to six.

Note:
This utility is available only with an English message.

This utility cannot be used while the key definition utility, such as 28KeyCfg, is in programming.

There is no keyboard or mouse response during reading or writing of settings.

Do not perform any operation that may cause interruption, such as tapping on the touch panel, during reading or writing of settings.

Setting File

An example of the setting file for this utility is shown below.

[General]

IgnoreCommands=Off
SystemParam00=49,0
SystemParam01=&32,&f7

[MSR]

Beep=On
CodeType=US
ValidTracks=1,2,3,J
CodeDefinition00=48,10
CodeDefinition01=&31,11,Shift
CodeDefinition02=&32,&0A,Ctrl
CardStart=CS
CardEnd=CE
Track1Start=1S
Track1End=1E
Track2Start=2S
Track2End=2E
Track3Start=3S
Track3End=3E
JIS2Start=JS
JIS2End = JE

In the General section, an entry line that may affect the entirety is described, in principle.

IgnoreCommands may be specified to be On. When it is specified to be On, the setting of the keyboard or MSR cannot be read or written.

SystemParamxx is described when the data is written in the system conversion area. The offset and data of the variable are divided with [,] for specification. These two can be specified by the byte width in the form of decimal or hexadecimal or character. For the decimal specification, it is described as it is. For the hexadecimal specification, & should be prefixed. For the character, $ should be prefixed. SystemParamxx may be described in more than one file by describing decimal in xx from 00 in order up to 99.

In the MSR section, an entry that is related to the MSR is described.

Beep may be specified to be On or Off. When it is specified to be On, beep sounds while the MSR is being read. When it is specified to be Off, beep does not sound while the MSR is being read.

CodeType is specified to be US, JP, FR, GR, or SP. The key-in data created while the MSR was being read becomes conformable to the keyboard array of the specified country.

ValidTracks is specified to be 1, 2, 3, or J. When it is specified to be 1, track 1 can be read. When it is specified to be 2, track 2 can be read. When it is specified to be 3, track 3 can be read. When it is specified to be J, the JIS2 track can be read. More than one file may be specified by dividing them with ,.

CodeDefinitionxx is described to make the character created while the MSR was being read original. The specification is made in order of character code, key number, and concurrent pressing key information by dividing them with ,. If not required, the concurrent pressing key information can be omitted. The character code and the key number are in the same format as that of SystemParamxx. The concurrent pressing key information can be specified to be **Shift**, **Ctrl**, and **Alt**. CodeDefinitionxx may also be described in more than one file. For xx, specify the decimal in order from 00 up to 99.

CardStart, CadEnd, Track1Start, Track1End, Track2Start, Track2End, Track3Start, Track3End, JIS2Start, and JIS2End are SSs/ESs for reading the MSR. Normal characters, including space, can be described as they are. Special characters can be described as \xx, where xx is a two-digit hexadecimal. Specifically, line feed, tab and \ (back slash) may be described as \n, \t, and \\, respectively.

The line beginning with ";" is regarded only as a comment line. No comment may be described at the right end of the entry line. Generally, no unnecessary space or tab may be included.

Logon Tool (for Windows XP/2000/NT)

With the SEGina (SEIKO EPSON Image ID Authorization) tool, the users of Windows XP/2000 and and Windows NT 4.0 can use the software keyboard after logging on/off from the software keyboard.

Data can be input in the windows in execution by clicking with the mouse the specific keys of the software keyboard displayed on the screen The software keyboard can be moved by dragging its upper part.

Restrictions for Windows 2000

When using the logon tool with Windows 2000, execute the Windows 2000 Service Pack2, and then execute the registry setting file " headless.reg" using the following procedure to change the registry. The registry setting file is in the "C:\Backup\Logon" directory.

1. Double-click the headless.reg. The setting is applied.

2. When the system is restarted, the setting is valid.

Installation

The instructions on the installation of this software are found in the Readme file in the C:\Backup\Logon directory. For installation, use the following procedure:

1. Execute C:\backup\logon\Setup.exe. The Welcome dialog box is displayed. Click **Next**.
2. Specify the destination of the installation directory (C:\Program Files\EPSON\SEGina\ directory is the default). When **Next** is clicked, installation starts.
3. When installation is complete, the Setup Complete dialog box is displayed. Select Yes, and click **Finish** to reboot the system.

⚠ *CAUTION:*

After installation of the SEGina in Windows NT 4.0 and Windows 2000, be sure to reboot the system. If the Actinkey is executed without rebooting the system, trouble may occur. If trouble occurs, reinstall the SEGina.

How to Use

The following three modules are installed:

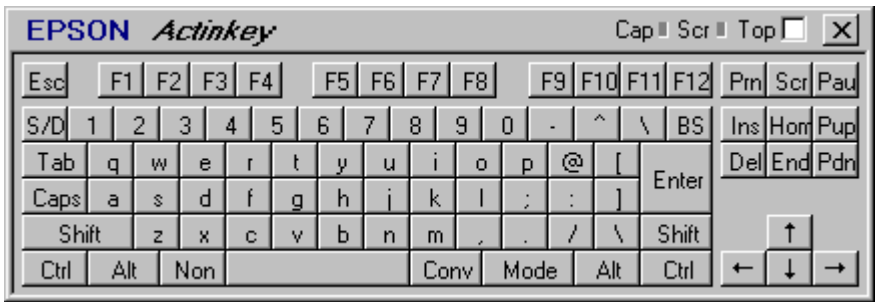
SEGina—Controls logon with its main module

Logonkey—Software keyboard displayed at the time of logon

Actinkey—Software keyboard displayed after logon

In Windows NT 4.0, when the power to the system is turned on, the Logonkey is displayed together with the Logon dialog box.

To use the software keyboard after the logon, select Actinkey from the Start menu. The Actinkey menu is displayed.


EPSON Actinkey
Cap Scr Top
Esc F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 Prn Scr Pau
S/D 1 2 3 4 5 6 7 8 9 0 - ^ \ BS Ins Hom Pup
Tab q w e r t y u i o p @ [Enter Del End Pdn
Caps a s d f g h j k l ; :]
Shift z x c v b n m , . / \ Shift
Ctrl Alt Non Conv Mode Alt Ctrl

When the check box at the top right is checked, the software keyboard is always displayed in the upper part.

To exit Actinkey, click the upper right **X**.

Do not use this tool for the hardware keyboard or it may respond with the wrong keyboard status. The tool is applicable to the 101/102/106-key keyboards; however, the operation cannot be guaranteed when the OS is not in Japanese or English.

EPSON OPOS ADK

OLE (Object Linkage and Embedding) is component software that runs on the OS of Win 32-bit style, such as Microsoft Windows NT 4.0. Depending on how the software components have been created, the software may be reusable or reversely compatible.

The objective of the OLE POS ("OPOS") is to use the OLE to standardize the control system (API) for the peripheral units of the POS. By this standardization, the application and peripheral unit control software become open and generic. The OPOS standardizes the interface between the POS application and the device control object, which depends on the device or the manufacturer. The OPOS also facilitates the transplant of the application and the reconfiguration of the peripheral devices.

Because of standardization of the peripheral devices, a large part of the work required for the development of software can be eliminated, and the system can become fully open. As a result, comparatively small-sized shops that plan to introduce the POS can easily configure an intelligent, flexible POS system.

OPOS makes it easy to build POS applications that take advantage of the functionality that Windows has to offer, such as graphics, video, and sound; a user-friendly GUI; and multitasking.

For information on the installation procedure for the OPOS ADK, see the user's guide registered in the \C:\Backup\Oposadk directory.

Creating the Component Software

The POS device needs a control program. The device control object once existed as a part of monolithic POS application software. Because of this monolithic structure, POS system designers had to replace or change the entire POS application software to change the device control object alone when a peripheral device was replaced. This work claimed a lot of time and money. POS application software developers had to become experts about each manufacturer's devices, including functions and command systems, to create a device control object.

With the advent of the PC-POS, however, any external device is now connectable to a PC as long as the interface (serial, parallel, or whatever) is supported. While the problem with the compatibility of the hardware was solved in this way, a problem with the software still existed. The software was not applicable, and the POS application software itself had to be replaced. For this reason, it was impossible to make the PC-POS fully open in terms of both the hardware and software.

To solve this problem, the device control object was modularized and made to be independent of the POS application software. Because only the device control object needs replacement at this time, the work to replace the POS application software itself when the device was replaced is simplified. Also, because the original device control object is supplied, the POS application

software developers no longer need the detailed expertise of each manufacturer's device or the standardization of the entire system and the hardware as well as the software. This reduces the load of developing work.

Software Standardization

When a device control object is created, it is necessary to choose the interface (API) between the POS application software and the device control module. EPSON has joined an industrywide and worldwide effort to standardize and spread the use of APIs. The standardized software uses an OCX driver, which is modularized software divided into two levels: the Control Object (CO) and the Service Object (SO).

A separate CO exists for each class of device, while a separate SO exists for each individual device; for example, software that uses a TM-U950 needs a general POS printer CO and a specific TM-U950 SO. If the TM-U950 printer were replaced by a TM-U375 printer, the TM-U950 SO would have to be replaced by a TM-U375 SO, but the rest of the software, including the POS printer CO, would remain the same. In other words, a switch from one printer to another requires only a change in the SO.

EPSON Software

The software products (OCX drivers) that EPSON offers to enable such an OPOS system are called the EPSON OPOS ADK. The EPSON OPOS ADK provides the OCX driver and much more. EPSON also provides custom tools to support the construction and development of an OPOS application software development environment.

Keyboard Firmware Setting Utility for MS-DOS

The Keyboard Firmware Setting utility (PKMODE2.EXE) sets the POS board built in the IR-320. By using this utility, the keyboard firmware and the MSR unit can be set.

Start

The Keyboard Firmware Setting utility (PKMODE2.EXE) has been registered in the following directory in the initial setting:

```
c:\backup\keycfg\Dos\Pkmode2.exe
```

Prepare a floppy disk of MS-DOS that can be booted, and copy this utility onto this floppy disk. To start the Keyboard Firmware Setting utility, exit Windows, and reboot the system from MS-DOS. By inputting the command name from the keyboard, the utility starts.

Note:
To execute this utility, be sure to exit Windows, and reboot the system from MS-DOS beforehand. This utility cannot be executed from the DOS box.

To use the MSR unit, execute this utility or the Keyboard Firmware Setting utility for Windows, and set the track to be read. To make the JIS2 type card readable, execute the following command:

```
PKMODE2 MSR=12J
```

Commands

Run the utility by typing the command in the following format:

```
PKMODE2.EXE[MSR1|MSR3|MSR] [US|JP|FR|GR|SP] [CMDOFF|CMDON]
[TK0SS=string] [TK0ES=string] [TK1SS=string] [TK1ES=string]
[TK2SS=string] [TK2ES=string] [TK3SS=string] [TK3ES=string]
[TKJSS=string] [TKJES=string] [BEEP=ON|BEEP=OFF] [MSR=m...]
[KEYTBL=pathname] [/TRACE] [/TRON] [/TROFF]
[/VAL=xxh,yyh] [/PARA[zzh]]
```

Description of parameters:

MSR1:	Prohibits decoding for Track 3. Set when the DM-MR111-012 is mounted.
MSR3:	Prohibits decoding for Track 1. Set when the DM-MR111-013 is mounted.
MSR:	Sets the MSR unit decode to enable the 3-track decodes for Track 1, Track 2, and Track 3. Sets the DM-MR123 when it is selected.
US:	Responds with the MSR data in the scan code of the English 101-key keyboard (default value).
JP:	Responds with the MSR data in the scan decode of the Japanese 106-key keyboard.
FR:	Responds with the MSR data in the scan decode of the French 106-key keyboard.
GR:	Responds with the MSR data in the scan decode of the German 106-key keyboard.
SP:	Responds with the MSR data in the scan decode of the Spanish 106-key keyboard. This country setting is effective also for the default key setting of the 28-key keyboard. The specification of FR/GR/SP cannot be used for the IR-300.
CMDOFF:	Outputs all commands to the external K/B, neglecting the K/B interface command. Sets such things as the programming of the POS keyboard connected to the external K/B before executing them. According to this setting, the command cannot be executed until it is reset or the power is turned off. The CMDOFF is cancelled, however, when it is reset or the power to the main body is turned off, and the CMDON status is resumed.
CMDON:	Accepts the command of the K/B interface (default value).

TK0SS=string:	Replaces the start flag in the MSR card unit with the string. The default is " " (none).
TK0ES=string:	Replaces the end flag in the MSR card unit with the string. The default is " " (none).
TK1SS=string:	Replaces the 1track start flag of the MSR with the string. The default is "%."
TK1ES=string:	Replaces the 1track end flag of the MSR with the string. The default is "?."
TK2SS=string:	Replaces the 2track start flag of the MSR with the string. The default is ";."
TK2ES=string:	Replaces the 2track end flag of the MSR with the string. The default is "?."
TK3SS=string:	Replaces the 3track start flag of the MSR with the string. The default is "+."
TK3ES=string:	Replaces the 3track end flag of the MSR with the string. The default is "?."
TKJSS=string:	Replaces the JIS II type start flag of the MSR with the string. The default is " " (20th).
TKJES=string:	Replaces the JIS II type end flag of the MSR with the string. The default is "%" (7th).
BEEP=ON:	Enables the buzzer sound when the magnetic card is read. This is the default setting. When the magnetic card is read in order, the buzzer sounds once. When an error is caused to the magnetic card reading, the buzzer sounds three times. The LED lights up at the same time.
BEEP=OFF:	Invalidates the sound loaded from the card with the MSR123 and only illuminates the LED.
MSR=m...:	Specifies the track that enables the MSR decode. The following four characters can be specified: "1": ISO/JIS1 type Track 1 "2": ISO/JIS1 type Track 2 "3": ISO/JIS1 type Track 3 "J": JIS2 type When the same character is specified more than once, an error is caused. The default is "123." "MSR1" is "MSR=12," and "MSR3" is "MSR=23."
KEYTBL=pathname:	Sets the scan code conversion table for converting the MSR data into the scan code. This is used for any keyboard other than the U.S. 101-key keyboard and the Japan 106-key keyboard.
/TRACE:	Displays the trace information to the standard output. For example, this can be saved in a file by using the redirect.
/TRON:	Enables the trace function.
/TROFF:	Disables the trace function (default value).
/VAL=xxh, yyh:	Sets variable xxh to the yyh address of the system.
/PARA[zzh]:	Displays the values of the system variables from 00h to FFh. When zzh is specified, the SRAM values from zz00h to zzFFh are displayed.

More than one parameter can be specified together, however, the parameters with "/" and the parameters without "/" cannot be specified together.

The parameters are analyzed and executed one by one. When an invalid parameter is specified, an error to that effect is displayed, and the next parameter is analyzed. Even if an error is caused, the processing does not cease.

The value set under this command is written into the K/B firm unless it is in the CMDOFF status; therefore, the setting cannot be deleted by turning on the power.

Processing Details

The version is displayed as Firmware Version= V3.00. To obtain detailed version information, execute PKUPDT2.EXE.

Note:
This utility is started from and executed on MS-DOS. (It cannot be executed from the DOS box.)

This utility uses the K/B interface for communication with the firmware. For this reason, do not operate the 28-key keyboard, the KeyLock, and the MSR as well as the external keyboard during the execution or an error is caused during the data communication, and this utility cannot start in order.

Do not reset the system or switch the power supply off when this utility is in operation.

When the CMDOFF is set, the command cannot be executed unless it is reset or the power to the main body is turned off.

Messages

The following message is displayed when the utility starts.

```
EPSON POS Keyboard Configuration Utility Vx.xx.xx
Firmware Version= Vx.xx.xx
```

As parameters execute correctly, the following messages are displayed:

POS key status messages

Parameter	Message
MSR1	MSR track1
MSR3	MSR track3
MSR	MSR default
US	US 101 keyboard
JP	JP 106 keyboard
FR	French keyboard
GR	German keyboard
SP	Spanish keyboard
CMDOFF	Command Function OFF
CMDON	Command Function ON
TK0SS	Card Start Sentinel = string
TK0ES	Card End Sentinel = string
TR?SS	Track? Start Sentinel = string
TK?ES	Track? End Sentinel = string
TKJSS	JIS2 Start Sentinel = string
TKJES	JIS2 End Sentinel = string
BEEP=ON	MSR Beep ON
BEEP=OFF	MSR Beep OFF
MSR=m..	MSR track m..
KEYTBL	Set KeyTable
/TRACE, /TRON, /TROFF	See ( )
/VAL=	Set Addr(VAL)=xxh(yyh)
/PARA, /CODE, /DATA	*** Parameter Dump *** ADDR: +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +A +B +C +D +E +F 0123456789ABCDEF 0000: 00 01 02 03 04 05 06 07 - 08 09 0A 0B 0C 0D 0E 0F ..... 0010: 30 31 32 33 34 35 36 37 - 38 39 3A 3B 3C 3D 3E 3F 0123456789:;<=>? .... 00E0: 40 41 42 43 44 45 46 47 - 48 49 4A 4B 4C 4D 4E 4F @ABCDEFGHIJKLMNO 00F0: 50 51 52 53 54 55 56 57 - 58 59 5A 5B 5C 5D 5E 5F PQRSTUVWXYZ(\)^_
KEYL	KeyLock Position
/KEY=	SetKey data=ii ofs=jj num=kk

* ? is 1, 2, or 3.

Error messages are shown below:

POS key error messages

Message	Description
Firmware version is not correct	Firmware version error, and others
Invalid parameter	Parameter error
Communication error	Communication error
Invalid pathname	Pathname error

28-Key Configuration Utility for MS-DOS

The 28-key configuration utility for MS-DOS can define the keys and **Shift**+keys on the 28-key keyboard unit connected to the IR-320 in MS-DOS.

This program has been preinstalled in the following directory:

```
C:/Backup/Keycfg/DOS/
```

This program is stored on the floppy disk that comes with the 28-key keyboard unit and is installed on the hard disk by executing the install program.

Key definitions

Number of definitions	21 characters maximum per key (Shift/Ctrl/Alt/Gray are each handled as one character)	
Operation	Keyboard (mouse not available)	
Functions	File	1. Designating a key-definition file
	Load	2. Reading data from a key-definition file
	Save	3. Writing data to a key-definition file
	Edit	4. Editing a key-definition file
	Download	5. Writing defined keys to the keyboard

See the table "Definable keys" on page 4-60 for the keys that can be defined.

Note:
Do not input from the keyboard while the defined keys are being written to the keyboard.

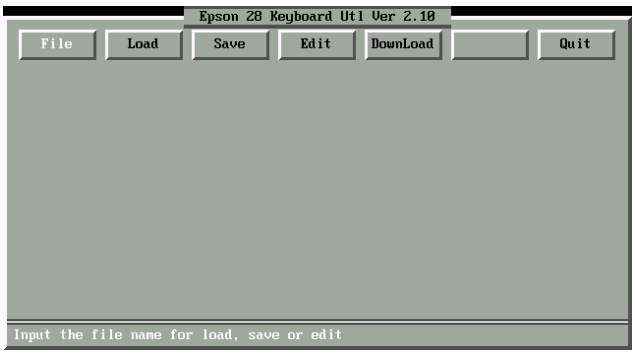
Start

During installation, the key definition utility for MS-DOS (**POSKB28.EXE**) is copied into the specified directory. If no directory is specified, the utility is copied into the **C:\POSKB** directory.

Start this program as follows:

1. Exit Windows, and restart the system in DOS mode.
2. At the DOS prompt, type **POSKB28**, and press **Enter**.

3. When this program starts, the following screen appears.



How to Operate

Initial Screen

Select the button with the arrow buttons (← and →, ↑ and ↓), and press **Enter** to execute the command.

File

This key is used to specify the key definition file name. Enter the file name, and press **Enter**. To cancel, press **Esc**.

Load

This key is used to read the data from the key definition file specified by the **File** button.

Save

This key is used to save the data under the key definition file name specified by the **File** button.

Edit

This key is used to edit the key definition by using the following procedure:

1. The 28 keys are displayed on the screen in the same array as the keyboard unit. Select the key to be edited with the ←, →, ↑, and ↓ keys, and press **Enter** to start the editing.

2. Press the keys one by one according to the contents of the key to be defined. The key definition contents are displayed in order of inputting in the New column in the lower part of the screen. The previous key definition contents are displayed in the Old column.

3. When **Alt** + **Ctrl** is pressed, the process retraces the inputted key contents by one key contents. When **Ctrl** + **Shift** is pressed, the key definition is fixed, and the Key Selection screen is displayed again. When **Shift** + **Shift** is pressed, the inputted key definition is cancelled, and the Key Selection screen is displayed again.

4. The key top of the edited key is displayed in red.

5. To exit the editing on the Key Selection screen, press **Esc**.

Download

This key is used to actually write the defined key contents in the keyboard. When Download is executed, the key contents are written from 1 in order. After writing is completed, the following message is displayed:

```
Key map Download O.K., Press any key to Continue...
```

When any key is pressed, the initial screen is displayed.

Quit

This key is used to exit this utility.

For information on the definable keys, see the table "Definable keys" below.

- ❑ The file name set at the File command is saved in K28_DL.CFG as the key definition data when this utility is finished.

List of Definable Keys

Following is a list of definable keys with the supplied utilities. "Yes" means "can be defined"; "No" means "cannot be defined" in the table below.

Definable keys

Utility	**POSKB28.EXE**			
OS	DOS			
Language	U.S. mode			
Keyboard	101 series			
Keys that cannot be defined, depending on OS	Print Screen, Scroll Lock, Pause, Num Lock, Caps Lock, Ctrl+Alt+Del, Shift, Alt, Ctrl			
Limits on key combinations	**Single**	**Shift**	**Ctrl**	**Alt**
Esc	Yes	No	No	Yes
Fn (Function Key)	Yes	Yes	Yes	Yes
1 3 4 5 7 8 9 0	Yes	Yes	No	Yes
2 6	Yes	Yes	Yes	Yes
a - z	Yes	Yes	Yes	Yes
Tab	Yes	Yes	Yes	Yes
BS	Yes	No	Yes	Yes
Space	Yes	No	No	No
Enter	Yes	No	Yes	Yes
- ( ) ¥	Yes	Yes	Yes	Yes
= ; ' ` , . /	Yes	Yes	No	Yes
Ins	Yes	No	Yes	Yes
Del	Yes	No	Yes	Yes

Definable keys (continued)

Home	Yes	No	Yes	Yes
End	Yes	No	Yes	Yes
PageUp	Yes	No	Yes	Yes
PageDown	Yes	No	Yes	Yes
↑	Yes	No	Yes	Yes
↓	Yes	No	Yes	Yes
→	Yes	No	Yes	Yes
←	Yes	No	Yes	Yes
/ * (Ten key)	Yes	No	Yes	Yes
- + (Ten key)	Yes	No	Yes	Yes
Enter (Ten key)	Yes	No	Yes	Yes
0 . 1 2 3 4 5 6 7 8 9 (Ten key)	Yes	No	Yes	No

84-key Configuration Utility (for MS-DOS)

You can use the key configuration utility for MS-DOS to define keys of the KeyLock keys and 84-key keyboard connected to the IR-310/320 in MS-DOS.

The version of the utilities is renewed.

The compatibility of the 84-Key Configuration Utility (for MS-DOS) and the keyboard firmware

	Keyboard firmware	
	3.00	3.03
POSKB.exe Ver.2.11	OK	OK
POSKB.exe Ver.2.00	OK	NG

Key definitions

Number of definitions	84 keys and 6-position key lock keys. 16 or 21 characters maximum per key. * (Shift/Ctrl/Alt/Gray are each handled as one character.)	
Operation	Keyboard (mouse not available).	
Functions	File	1. Designating a key-definition file
	Load	2. Reading data from a key-definition file
	Save	3. Writing data to a key-definition file
	Edit	4. Editing a key-definition file
	Download	5. Writing defined keys to the keyboard

* 21 Character :Than version 2.11 newer

Start

The key definition utility for DOS is stored in the following directory by default:

`C:\Program Files\Key Config\poskb.exe`
(In DOS mode, this file is shown as C:\progra~1\keycon~1\poskb.exe)

To execute this utility, quit Windows and restart the IR-310/320 in the DOS mode. Type the command name on the keyboard and the following screen is displayed.

Basic Operations

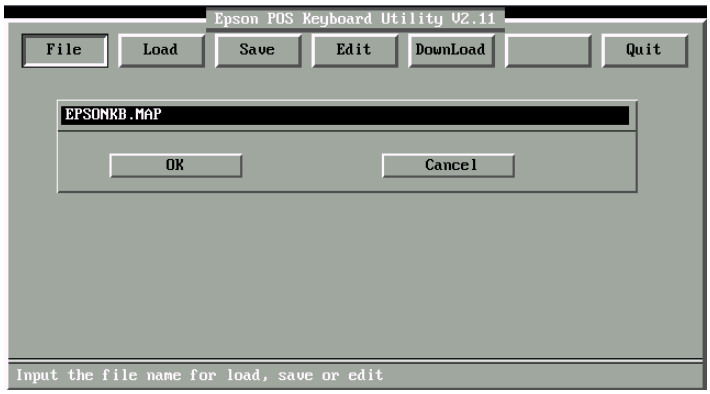
The utility has the five command buttons below:

File	Names the file. Key definitions are saved or loaded using the file name created with this function.
Load	Loads the key-definition data file you specify.
Save	Writes key-definition data to the disk file named by the file function.
Edit	Edits key definitions one key at a time.
Download	Writes the key-definition data to the keyboard memory. The keyboard data does not change until the key-definition data is downloaded.

Select the command with the right or left arrow key, and press **Enter** to execute it. To exit the program, select **Quit**.

File Command

When you select **File**, the following screen is displayed.



The file command defines a key-definition file name for **Load** and **Save** operations.

This file name must use MS-DOS file name format (8-character name + 3-character extension). You can edit the file name with **Backspace**, **Delete**, and arrow keys.

Press **Enter** to confirm the file name or **ESC** to cancel.

When you exit this utility, the file name defined by the **File** command is saved in the KBD_DL.CFG file.

When the utility is booted up next, the name of the file containing the key-definition data is read from KBD_DL.CFG.

Load Command

When you select the **Load** command, the following screen is displayed.

Press **Enter** to read the key-definition data from the file created by the **File** command.

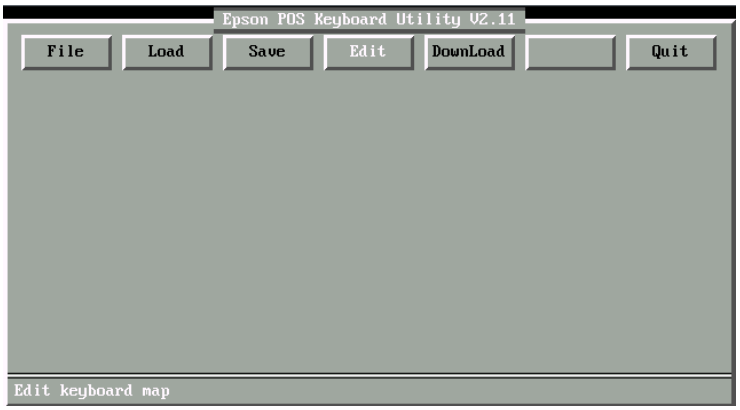
Save Command

When you select the **Load** command, the following screen is displayed.

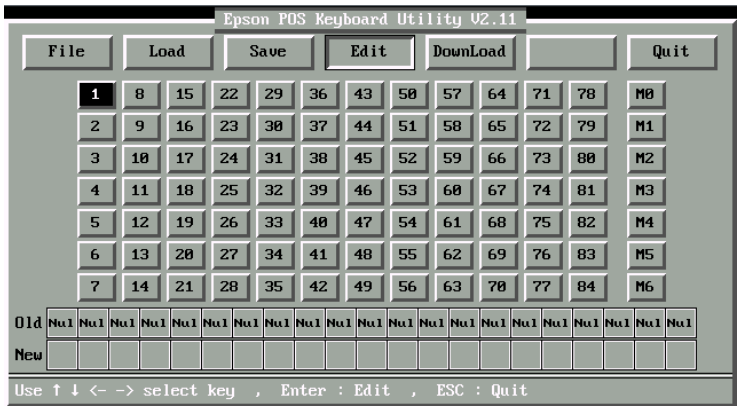
Press **Enter** to save the key-definition data to the file created by the **File** command.

Edit Command

When you select **Edit**, the following screen is displayed.



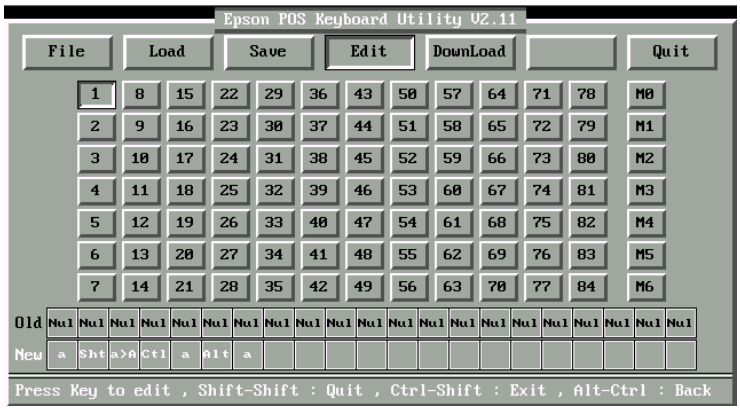
Press **Enter** to switch to the screen below.



The highlighted key on the screen is the key being edited, and the current definition of the key is displayed in the bottom part of the screen in the "Old" row. Press the arrow keys to select the key to be edited; then press **Enter** to switch to the next screen.

M0 to M6 indicate the key lock keys.

Enter the definition for the selected key. Your definition is displayed in the "New" row.



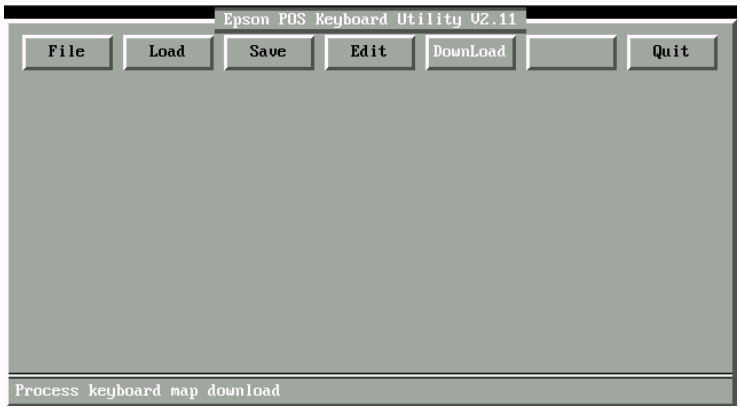
Use the definition keys below to edit the key definitions.

Alt + Ctrl	Delete the previous key definition.
Shift + Shift	Delete input data and revert to the definition before the key was selected.
Ctrl + Shift	Save the input data. The keytop changes to show that the key has been defined.

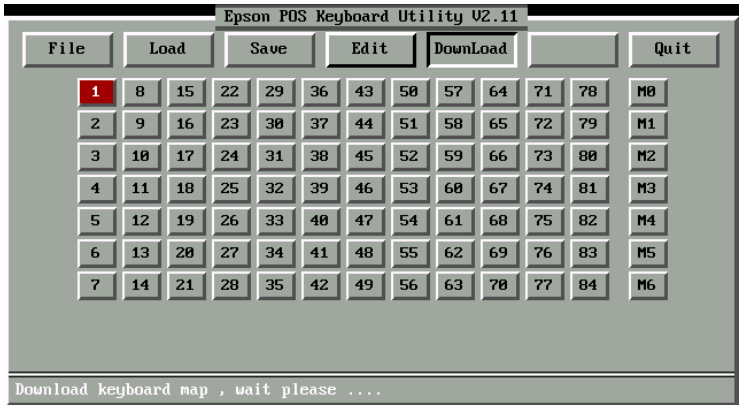
Press **ESC** to quit the Edit menu.

Download Command

When you select **DownLoad**, the following screen is displayed.



Press **Enter** to switch to the screen below.



While data is transmitted, the following message is shown at the bottom of the screen.

`Download keyboard map, wait please...`

Note

Do not enter data from the keyboard during a download.

Quit Command

When you select **Quit**, the following screen is displayed.

Press **Enter** to quit this program.
You can also exit the program by pressing the **ESC** key, but when you press **ESC**, the file name created with the **File** command is not saved.

Error Messages

The program displays the following error messages.

During boot-up

`Invalid key configuration format – Press any key to continue...`

A data inconsistency exists in the key conversion file (KEYTABLE.DEF). Check the data.

Scan code table overflow – Press any key to continue...

Too much key-definition data exists in the key conversion file (KEYTABLE.DEF). Limit the data to the required items.

Load command

File not exist. Press any key to end...

The file designated by the **File** command does not exist. Check the file name.

File format error. Press any key to end...

Abnormal key-definition data. Check the file name.

Save command

File create error. Press any key to end...

Could not save the key-definition data. Check the free capacity on the hard disk drive.

Download command

Key map download Fail – Time Out. Press any key to continue...

Could not write the key-definition data to the keyboard.

Upload command

Key map upload Fail – Time Out. Press any key to continue...

Could not read the key-definition data to the keyboard.

Automatic Definition Data Setting Utility (For MS-DOS)

Outline

This utility automatically sets the definition information of the POS keyboard of the IR-320.

Command

Execute the command in the following format:

```
PKLOAD.EXE data-file
```

Processing Details

This utility automatically sets the following data:

- Saving file for Windows version 28-key definition (.K28)
- Saving file for Windows version 84-key definition (.K84)
- Saving file for Windows version KeyLock definition (.KYL)

- Setting file for this utility (.PKL)

Be sure to specify the extension of the specified file because the effectiveness of the specified file is checked with its extension. The download function of the upload file is realized by PKUPDT2.EXE.

Note:
This utility is started from and executed on MS-DOS. (It cannot be executed from the DOS box.)

This utility uses the K/B interface for communication with the firmware. For this reason, do not operate the 28-key keyboard, the KeyLock, the MSR, or the external keyboard during the execution or an error is caused during the data communication, and this utility cannot start in order.

Do not reset this utility or turn off the power to the main body during the execution of this utility.

Messages

Messages

Message	Description
EPSON POS Keyboard Auto Definition Utility Vx.xx.xx	During startup
Usage: PKLOAD data-file data-file: definition data file .K84 :84Key definition data .K28 :28Key definition data .KYL :KeyLock definition data .$$$:PKUPLD saved data .FLD :PKUPLD2 saved data .PKL :PKMODE definition data	Usage
EPSON POS Keyboard Auto Definition Utility Vx.xx.xx Now transfer 28Key Definition data	28-key definition data transfer
EPSON POS Keyboard Auto Definition Utility Vx.xx.xx Now transfer 84Key Definition data	84-key definition data transfer
EPSON POS Keyboard Auto Definition Utility Vx.xx.xx Now transfer KeyLock Definition data	Key lock definition data transfer
The message like that of PKMODE.EXE is displayed. For information, see the table "POS key status messages" on page 4-57.	PKMODE definition data transfer

Error messages

Message	Description
Firmware version error and others	Firmware version error and others
Invalid parameter	Parameter error
Firmware communication error	Firmware communication error
File access error: No such file or directory	File access error

Ending Codes

Ending codes

Ending code	Description
0	Normal termination
10	Wrong firm version or execution on other PC (abnormal termination)
11	Parameter error (abnormal termination)
14	Error in communication with the firmware (abnormal termination)
20	Error during file access (abnormal termination)
21	Abnormal file data format (abnormal termination)

File Format

The setting file for this utility is created by using a text editor or other device. The extension of this file should be specified as [.PKL]. The format has the following sections and entries:

File format

Section	Entry	Parameter (underlined parameters are the default values)	Remarks
(General)			Fixed value. Be sure to describe at the start.
	Version	PKL100	Fixed value. Be sure to describe at the start.
	IgnoreCommands	Selected from Off and On	Be careful that if On is selected, the subsequent commands are not accepted.
	SystemParam00		Set in the Offset and Value formats. 00h < Offset ≤ FFh, 00h ≤ Value ≤ FFh

File format (continued)

Section	Entry	Parameter (underlined parameters are the default values)	Remarks
(MSR)			
	ValidTracks	Selected from 1, 2, and 3	Selection of more than one value may be selected.
	Beep	On, Off	
	CodeType	US, JP, FR, GR, SP	
	CardStart		For information on input enabled characters, see SS/ES Code Input Enabled Characters. (<, >, |) are characters and can be input. Input the hexadecimal as (\nn) within a range from (01h) to (7Fh). Effective up to 7 characters. The 8th character and those thereafter are neglected. Because even the line-feed character is effective, do not carelessly input a space or a tab.
	CardEnd		
	Track1Start		
	Track1End		
	Track2Start		
	Track2End		
	Track3Start		
	Track3End		
	JIS2Start		
	JIS2End		
	CodeDefinition00		See "Code Conversion Entry" on page 4-71 for further details.

When nothing is described after the entry, the entry setting is deleted.
For Sysparam00 and CodeDefinition00, set numeric numbers in a range from 00 to 99. Set the numeric values one by one in ascending order. Do not input the same numeric value for more than one.

The default setting (U.S. mode) is described as follows:

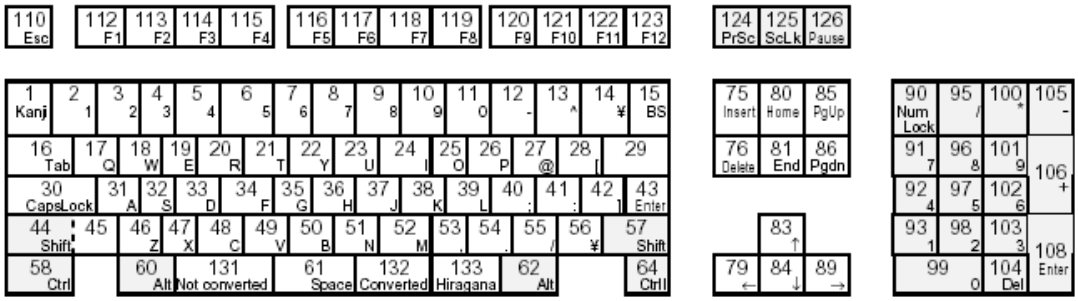
```
(General)
Version=PKL100
IgnoreCommands=Off

(MSR)
ValidTracks=1,2,3
Beep=On
CodeType=US
CardStart=
CardEnd=
Track1Start=%
Track1End=?
Track2Start=;
Track2End=?
Track3Start=+
Track3End=?
```

Code Conversion Entry

```
CodeDefinitionNN = Character Code, Key Number, Shift Mode
```

CodeDefinitionNN	:	Specifies the character code to be defined. 'c' defines whether a character or numeral has been specified. Example: 'A' 0x41 65
Character Code	:	Sets values between 01h and 7Fh
Key Number	:	Specifies the key numbers shown in the table below
Shift Mode	:	Concurrent pressing key information
Shift	:	Used for the scan codes with the **Shift** key
Control	:	Used for the scan codes with the **Ctrl** key
Alt	:	Used for the scan codes with the **Alt** key



List of key numbers (keys shaded in gray cannot be set)

Power Management Driver APM2.0

When this driver is installed, the following power management functions become available:

- Turning off the power to the system after shutting down Windows NT
- Notification that the front power switch was pressed
- Notification that the AC power is abnormal

The Power Management Driver APM2.0 is attached to the battery unit (OI-R03-021).

Installation

When the driver has not yet been installed, install it by using the following procedure.

Note:
Install the driver after completion of all setting work for Windows NT, including the Service Pack.

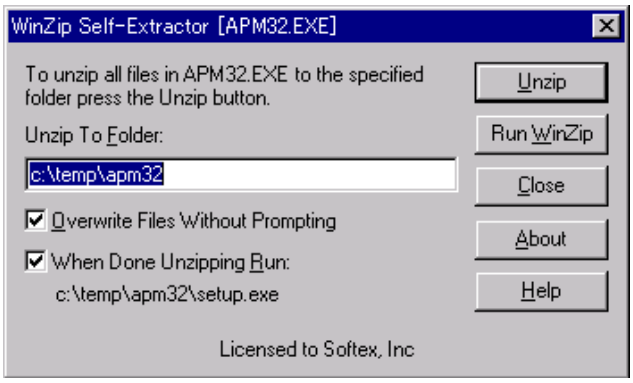
Leave the installation work for the driver to a user qualified as an administrator.

1. Exit all applications under execution.

2. Insert the floppy disk attached to the OI-R03 into the floppy disk drive of the IR-320.

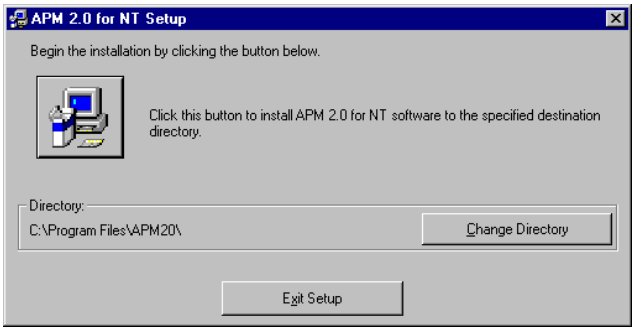
3. Execute APM32.EXE on the floppy disk.

4. The following dialog box for specifying the destination of extraction is displayed. Confirm the destination of extraction, and click **Unzip**. Then, the Setup program is extracted into the specified directory.



5. After the extraction, the Termination dialog box is displayed. Click **OK** to close the Termination dialog box.

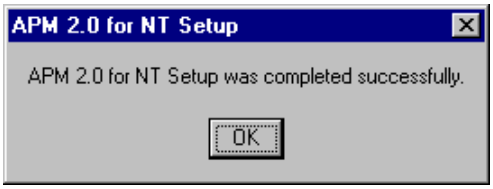
6. The following Setup screen is displayed.


APM 2.0 for NT Setup
Begin the installation by clicking the button below.
Click this button to install APM 2.0 for NT software to the specified destination directory.
Directory:
C:\Program Files\APM20\
Change Directory
Exit Setup

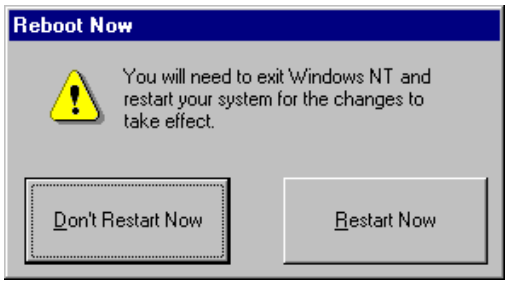
7. Confirm the directory into which the driver should be installed, and click **Setup**. To change the directory, click **Change Directory**, and specify the destination of the installation directory.

8. When **Setup** is clicked, installation of the driver starts.

9. After completion of the setup, the following screen is displayed. Click **OK**.



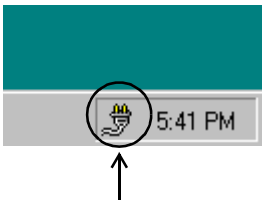
10. The screen prompts you to reboot. Click **Restart Now**, and reboot the OS. The driver becomes available after rebooting.


Reboot Now
You will need to exit Windows NT and restart your system for the changes to take effect.
Don't Restart Now
Restart Now

Confirmation

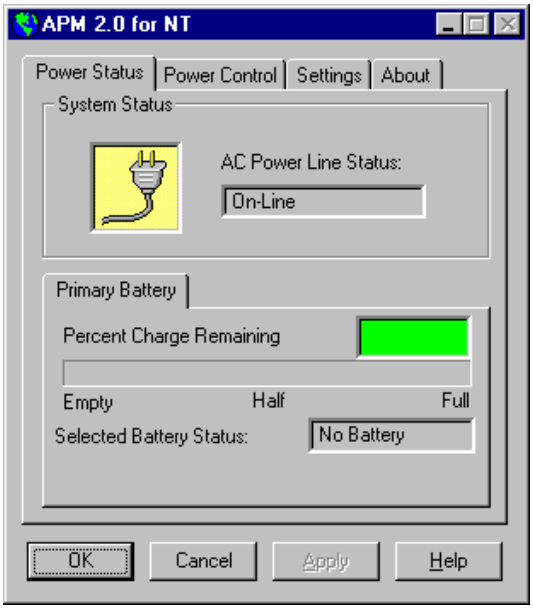
After rebooting the OS, check whether the driver has been installed properly by using the following procedure:

1. Confirm that the power plug icon is displayed on the task bar.



Notes for Use

- When the power plug icon on the task bar or APM2.0 for NT on the control panel is double-clicked, the following setting screen is displayed. Click **OK** without changing the setting to exit the setting screen.



- To conceal the power plug icon on the task bar, select the Settings tab on the above setting screen, uncheck the Show Icon in Taskbar check box, and click **OK**. The power plug icon disappears from the task bar.

Reference

The following events occur when the front switches using the environment provided by this driver are operated (Front Switch Operation) and the AC power error is detected (AC Fail):

1. Occurrence of AC Fail (AC Offline) event or Front Switch Operation
2. Notification of AC Offline Status caused by the APM BIOS
3. Acceptance of AC Offline Status Notify by the driver
4. Notification of WM_POWERBROADCAST from the driver to the application
5. Termination processing by the application itself
6. Execution of WinNT Shutdown by using the ExitWindowsEx function
7. Execution of Auto Power of the system by the APM BIOS after WinNT Shutdown

By using the WM_POWERBROADCAST notification from the driver, the processing can be performed from the normal shutdown of Windows NT to the power off.

The following shows easy sample codes. In practical operation, the shutdown should be performed after terminating all applications.

```
LRESULT CALLBACK WndProc(HWND hWnd, UINT Message, WPARAM wParam,
LPARAM lParam)
    {
HWND          hTmpWnd;
HBRUSH        hTmpBrush;
HANDLE        htkProcess;
OKEN_PRIVILEGES  tkPriv;
UINT          uFlags = EWX_SHUTDOWN;
switch(Message)
    {
case WM_POWERBROADCAST:
OpenProcessToken(GetCurrentProcess(),
TOKEN_ADJUST_PRIVILEGES, &htkProcess);
tkPriv.PrivilegeCount = 1;
LookupPrivilegeValue(NULL, SE_SHUTDOWN_NAME, &tkPriv.Privileges[0].Luid);
tkPriv.Privileges[0].Attributes = SE_PRIVILEGE_ENABLED;
AdjustTokenPrivileges(htkProcess, FALSE, &tkPriv, 0, NULL, NULL);
ExitWindowsEx(EWX_POWEROFF, 0);
break;
default:
return DefWindowProc(hWnd, Message, wParam, lParam);
}
return 0L;
```

AC Line Tool (For Windows 2000/98)

The AC Line Tool is used to send a notification to the application that the system power has been changed from the AC Line to the battery drive in Windows 2000/98. When the optional battery unit (OI-R03-021) is attached, if the AC Line is cut due to a power cut, the power is changed to be supplied by the battery unit. When this happens, the tool displays a message that encourages the user to save the data at the application side and the tool enables programming to exit the application.

Note:
This tool cannot be used in Windows NT.

Installation

Note:
Only a user who has administrative authority can install it.

Follow the steps below for the installation.

1. Execute C:\backup\epsbatt\Epsbatt.exe. The Welcome dialog appears. Click **Next**.
2. When the installation is finished, the Reboot dialog appears. Select "Yes, I want to restart my computer now." and click **Finish**.
3. The system is rebooted and the tool is automatically started.

Uninstallation

Follow the steps below for uninstallation.

1. Open [Control Panel].
2. Select [Add/Remove Applications].
3. Select [EPSON AC Line watching] from the list of software installed and click the [Add/Remove] button.
4. The dialog to confirm the uninstallation appears. Click [OK] to execute the uninstallation.

Usage

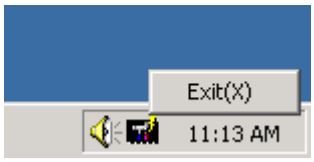
If you install the tool, when the system power is switched from the AC Line to the battery drive, it transmits [WM_POWERBROADCAST] and [PBT_APMPOWERSTATUSCHANGE] to all the windows.

Startup

If you install the tool, when the sytem set to the registry starts up, the tool is set to start up automatically. When the tool starts up, the icon appears in the task tray.

Exit

Right-click the icon on the task tray and select Exit from the pop-up menu to exit the tool.



Power Button Tool (For Windows 2000)

This tool is used to set the registry so that neither the shut down mode or stand-by mode can be entered even if the front power switch is pressed. This can prevent the system shut down due to an incorrect operation of the front power switch.

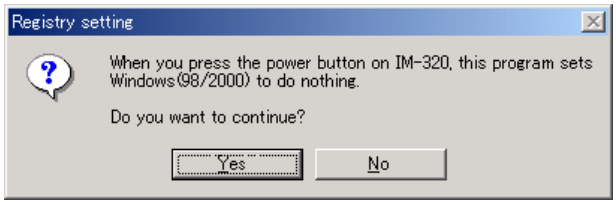
Notes on usage

If you update the [Power Control] of Windows, the settings are cleared. Therefore, be sure to set the settings after updating it.

Usage

1. Execute C:\backup\dissw\DISSW.EXE.

2. The following message appears. Click [Yes].


Registry setting
When you press the power button on IM-320, this program sets Windows(98/2000) to do nothing.
Do you want to continue?
Yes
No

3. When the registery is set, the following message appears. Clicking [Yes] reboots Windows and the settings are available. Clicking [No] returns to Windows without the settings being available. In this case, if you reboot Windows, the settings are available.

BaySwap

Once you install the BaySwap software, you can insert and remove CompactFlash cards while the IM-320 is in operation. BaySwap can only be used under Windows NT.The software must first be installed from the floppy disk supplied if it is to be used.

After installation, the BaySwap icon will reside in the task bar, as shown below, when Windows NT is booted.

Operation procedure

Check to ascertain that reading and writing is not being performed on the compact flash before detaching it.

1. Perform a left-hand click on the icon in the task bar, and then click on [Change device in Swappabe Bay].

2. The following dialog box will be displayed. Attach or detach the card at this point.

BaySwap
You may safely remove or replace the device in the Right Bay now.
Please press OK after removing or replacing the device.
OK

3. Click on the [OK] button once the card has been attached or detached.

Chapter 5
BIOS Functions

The IR-320 system ROM stores the following BIOS-related utilities. This chapter describes the BIOS setup utility and Power on self-test (POST).

- ❑ BIOS setup
- ❑ Power on self-test (POST)
- ❑ Device diagnostic utility (See Chapter 6)

Restrictions

When using Windows 2000, the quitting of the application and the Auto Shutdown of OS cannot be done by using the Power Status Change Notification.

The AC Line Tool utility is provided to send a notification to the application that the system power has been changed from the AC Line to the battery drive. See Chapter 4, "Utility" for details.

HDD Power Down Timer Setting

The HDD Power Down Timer settings are made through the OS in Windows XP/2000/98, but in Windows NT/95 and DOS, the settings are made through the BIOS, as detailed below. To have the HDD motor stop when the HDD is not accessed for a certain time, follow the steps below:

1. Start up the BIOS Setup Utility.
2. Select [Power Management Setup].
3. Select [HDD Power Down].
4. Select the time in the option.
5. Save it and restart.

After the restart, when there is no HDD access for the time set, the HDD Power Down Timer switches over to HDD Power Down and the motor of the HDD stops.

Note:
This function can be used only with BIOS version 2.11.02 or higher. If your BIOS version is before 2.11.01, upgrade the BIOS and then do the above procedure.

When access to HDD occurs, the motor of HDD begins to start and the HDD becomes accessible.

BIOS Setup

The BIOS setup menu utility is used to configure the system's operating environment. When setting up this product for the first time, be sure to run this program. If you change the operating environment, run this program again.

Operating Procedure

How to use setup

To execute BIOS setup requires a PS/2-compatible keyboard. BIOS setup cannot be run from the touch panel alone.

Start the BIOS setup utility using the following procedure:

1. Connect the keyboard to the keyboard connector.
2. Turn the power on to start up the IR-320.
3. Press **Del** during the POST process, and the BIOS setup utility will start up.

How to exit

Follow the steps below to enable your changes for a new configuration and to exit the BIOS setup utility:

1. Display the BIOS setup main menu.
2. Select **Save & Exit Setup**, and press **Enter**.
3. The message **SAVE to CMOS and EXIT (Y/N)?** is displayed. Press **Y** and **Enter** in this order to exit the BIOS setup utility, validate the changed settings, and reboot the system.

Follow the procedure below to cancel changes and exit the BIOS setup utility.

1. Display the BIOS setup main menu.
2. Select **Exit Without Saving**, and press **Enter**.
3. The message **Quit Without Saving (Y/N)?** is displayed. Press **Y** and **Enter**.
4. The BIOS setup utility finishes, and the system reboots with the new configuration canceled.

⚠ CAUTION:

Do not change the settings of any items other than those specified in this manual. Do not change the settings of any items for which "Do not change" is specified in this manual. If an incorrect setting is made, the IR-320 may not operate.

Troubleshooting

After the BIOS Setup utility has been used, the computer may be not able to be started up normally because of changes made.

When the BIOS Setup utility can be started up, execute the Load Optimized Default from the BIOS setup utility, save & exit, and then restart the system.

When the BIOS Setup utility cannot be started up, clear the CMOS with the jamper. Clear the CMOS by shorting 2-3 of JP5. For details, see Chapter 1 "Jumper Locations and Settings."

Changing settings

To choose an item, first move the cursor onto a desired field with the arrow keys. Next, select a value in the field with + (**PageUp**) or – (**PageDown**). Finally, select the **`Save & Exit Setup`** command in the main menu, which saves the currently displayed values of all the menus.

BIOS Setup Main Menu

The BIOS setup main menu contains the following items:

Table 5-1 BIOS setup main menu

Item	**Contents**
Standard CMOS Features	Basic BIOS setup menu (See Table 5-2)
Advanced BIOS Features	Extended BIOS setup menu (See Table 5-3)
Advanced Chipset Features	These features set items related to chipset. Since these settings are executed via the Load Optimized Defaults, they are the optimum settings for the system and generally **do not need to be changed**. (See Table 5-4)
Integrated Peripherals	Its items for controlling the input and output for the IDE controller, the USB controller, the parallel port, and the serial port. (See Table 5-5)
Power Management Setup	Sets items related to BIOS based power regulation of the power management timer, wake-up event and timer reset event. (See Table 5-6)
PnP/PCI Configurations	Sets items related to system resource allocation of IRQ numbers and DMA channel numbers. generally **do not need to be changed**. Default setting is Auto. (See Table 5-7)
Frequency/Voltage Control	it only displays items and no selection can be made.
Load Fail-Safe Defaults	The load fail-Safe defaults are executed when the minimum preset prescribed values required for the startup are set for each item. This function is only provided for troubleshooting and is normally not used.
Load Optimized Defaults	The load optimized defaults are executed when preset prescribed values are set for each item so that the system operates under optimum conditions. It is also executed when the "CMOS checksum error - Defaults Loaded" message is displayed and each item is restored to its prescribed value.
Set Supervisor Password	This function sets the system protection password. The password can be set for up to 8 characters (case-sensitive). The input demand timing for the password setting differs according to the setting for Advanced BIOS Features: Security Option. (See Password Setting)
Set User Password	This function sets the system protection password. The password can be set for up to 8 characters (case-sensitive). The input demand timing for the password setting differs according to the setting for Advanced BIOS Features: Security Option. (See Password Setting)
Save & Exit Setup	This is executed at restart after saving CMOS content changes.
Exit Without Saving	This is executed at restart without saving CMOS changes (cleared).

Standard CMOS Features Menu

In this menu, set the system clock and the calendar, set the disk drive parameters and the type of video subsystem, select among the error types that interrupt the power on self-test (POST), and so on.

Table 5-2 Standard CMOS Features menu

Items		Description
Date		Sets the date. (BIOS automatically determines the day of the week.) Press ← or → to move to the desired field (date, month, year). Press **PgUp** or **PgDn** to incrementally move the setting, or type the desired value into the field.
Time		Sets the clock in 24-hour format. For example, 1 p.m. is 13:00:00. Press ← or → to move to the desired field. Press **PgUp** or **PgDn** to incrementally move the setting, or type the desired value into the field.
IDE Primary Master IDE Primary Slave IDE Secondary Master IDE Secondary Slave		When selecting items marked with a ">", such as the IDE device setting (IDE Primary Master), the screen for selecting options is displayed and specifications can be set.
	IDE HDD Auto-Detection	Push the Enter key to execute the auto detection for the device. If the connection is made, information obtained from the device, including the access method, will be applied.
	IDE Primary Master IDE Primary Slave IDE Secondary Master IDE Secondary Slave	Set the detection method for the connection device. None: The connection detection is not executed. It is treated as disconnected software Auto: Auto detection is executed. The information held by the device is automatically applied. Manual: The information set by the user is applied.
	Access Mode	Set the access Method to the connected device. Note that when the device detection method is set as "None" it cannot be changed. CHS: Access for the device is shortened with "Cylinder Head Sector (Addressing) "having 0 to 1023 cylinders, 0 to 15 heads and 0 to 63 sectors. LBA: Shortened with the Logical Block Addressing Method, the entire memory area is divided into access units and those serial numbers are used for accessing. Large: This is the access method for extended CHS. When the number of CHS cylinders exceeds the normal amount of 1024 cylinders, the address is not accessible so the CHS is extended. Auto: BIOS determines the optimum method based on the information obtained by the device. The LBA method is normally used.
	Capacity	This item indicates the memory capacity for the connection device. The following differences occur, depending on the device detection method used. Auto: The value calculated according to information obtained by the device is displayed. Manual: The value calculated according to information specified by the user is displayed.
	Cylinder	This item indicates the number of cylinders for the connection device. The following differences occur, depending on the device detection method used. Auto: The value obtained by the device is displayed. Manual: The user can set the value within a range of 0-65,535 only when the access method is set as "CHS".
	Head	This item indicates the number of heads for the connection device. The following differences occur, depending on the device detection method used. Auto: The value obtained by the device is displayed. Manual: The user can set the value within a range of 0-255 only when the access method is set as "CHS".

Table 5-2 Standard CMOS Features menu (continued)

Items		Description
	Precomp	This item indicates the number of write compensation cylinders for the connection device. The following differences will occur, depending on the device detection method used. Auto: The value obtained by the device is displayed. Manual: The user can set the value within a range of 0-65,535 only when the access method is set as "CHS". (When connecting a device for which there is no particular value specified, a maximum value of 65,535 is specified)
	Landing Zone	This item indicates the head fixed track number for the connection device. The following differences will occur, depending on the device detection method used. Auto: The value obtained by the device is displayed. Manual: The user can set the value within a range of 0-65,535 only when the access method is set as "CHS". (When connecting a device for which there is no particular value specified, the number "1" is specified as the maximum number of cylinders).
	Sector	This item indicates the number of sectors for the connection device. The following differences will occur, depending on the device detection method used. Auto: The value obtained by the device is displayed. Manual: The user can set the value within a range of 0-255 only when the access method is set as "CHS".
Drive A		Drive A type is set. The definition for each setting is as follows. None: This setting is used when the FDD is disconnected or when the FDD is not loaded. Please note that when this setting is used, system resources, such as the IRQ cannot be opened. When you want to open the system resources when using this setting, select "Disabled" under Integrated Peripherals: Onboard FDC Controller, and "Yes" under Advanced BIOS Features: Report No FDD For WIN 95. When using this setting or the "Disabled" setting for the FDC, be sure to change to the Halt On setting. 360K, 5.25 in.:A 5.25 inch drive cannot be loaded on this device so 5.25 cannot be selected as a setting. 1.2M, 5.25 in.:A 5.25 inch drive cannot be loaded on this device so 5.25 cannot be selected as a setting. 720K, 3.5 in.:The fixes the floppy drive Read/Write to 720KB. Please note that since a 720KB Read/Write floppy disk can also be used for a standard equipped Read/Write floppy disk set at 3.5 inch and 1.44M, there is very little value in using this setting. 1.44M, 3.5 in.:This is the normal setting. This is the desired setting for both the default setting and the Fail-Safe/ Optimized. 2.88M, 3.5 in.:The standard FDD is not compatible with 2.88MB, so this setting cannot be used.
Halt On		Sets the system stop conditions for startup (POST). The definitions for each of the settings are as follows. All Errors:Use this setting to stop the system when an error occurs. No Errors:Use this setting to disregard the occurrence of errors and continue the startup process. All, But Keyboard:Use this setting to stop the system when any error occurs, with the exception of keyboard-related errors. This is the default setting for both Fail-Safe/ Optimized. All, But Diskette:Use this setting to stop the system when any error occurs, with the exception of floppy disk-related errors. All, But Disk/Key:Use this setting to stop the system when any error occurs, with the exception of floppy disk or keyboard-related errors.

Advanced BIOS Features Menu

In this menu, set the basic BIOS settings, such as cache, boot-up sequence, and memory shadowing.

Table 5-3 Advanced BIOS Features menu

Items	Description
Virus Warning	This is the setting for the data write enable/ disable to the boot sector and partition table. For the default setting, Fail-Safe is "Enabled" and Optimized is "Disabled". Enabled:This is the setting used to disable the write function. Although this setting protects the system from viruses, it does not permit execution of FDISK or FORMAT. Disabled:This is the setting used to enable the write function. Although FDISK and FORMAT can be executed using this setting, it does not protect the system from viruses. Always use the default setting.
External Cache	This setting enables/disables the L2 Cache inside the CPU. Enabled:Enables the L2 Cache. This is the normal setting. Disabled:Disables the L2 Cache. This setting may have an adverse effect on the system performance.
CPU L2 Cahce ECC Checking	This is the setting that enables/disables the ECC check for the L2 Cache in the CPU. The default setting is "Enabled". Enabled:This setting is used to perform the ECC check. This is the normal setting. Disabled:This setting is used when the ECC check is not performed.
Quick Post	Sets POST processing conditions. The default setting Quiet Post is set as "Disabled". Enabled:This setting is used to perform the memory test when rebooting after resetting the software or when auto detection of the IDE device is omitted. This makes it possible to reduce the time required for rebooting via software reset. Disabled:This setting is used to perform the memory test when rebooting after resetting the software or when auto detection of the IDE device is not omitted.
Quick Power On Self Test	Sets POST processing conditions. The default setting Quick Power On Self Test is set as "Enabled". Enabled:This setting is used to execute the POST processing (memory self diagnostic test) only once during startup. This setting can be used to reduce the time required for startup. Disabled:This setting is used to execute the POST processing (memory self diagnostic test) several times during startup. The ESC key may be pressed during POST to skip the processing.
First Boot Device Second Boot Device Third Boot Device	This setting sets the search order for the startup device. The search is performed in the order of First -> Second -> Third device and starts up from the first device that is capable of performing the startup (one that has a boot sector and that can be loaded with IPL). For both the default setting and Fail-Safe/Optimized, the settings are First ="Floppy", Second ="HDD-0" and Third = "SCSI". Change the setting so that it is compatible with the system configuration.
Boot Other Device	Even if a device search is performed in the order of First/Second/Third Boot Devices, and a device that is capable of performing the startup is not found, this setting can be used to execute/not execute the Boot Other Device function. The default setting is set as "Enabled". Change the setting so that it is compatible with the system configuration. Enabled:This setting is used to search for another device that is capable of performing the startup. Disabled:This setting is used to disable the search for another device that is capable of performing the startup. Reference: Information concerning the boot sequence If bootable SCSI drives (e.g., HDD and CD-ROM) are connected, some products give priority to such SCSI Drives regardless of the First Boot Device, Second Boot Device, Third Boot Device, and Boot Other Device settings. This is due to the specifications of the SCSI BIOS (adapters) in question.

Table 5-3 Advanced BIOS Features menu (continued)

Items	Description
Boot Up Floppy Seek	This setting is used to enable/disable the head seek test (either execute or not execute the head seek command) for floppy drive A during the startup. The default setting is "Enabled". Enabled:This setting is used to execute the head seek test. If the Standard CMOS Features: Drive is set as "None" and the Integrated Peripherals: Onboard FDC Controller is changed to "Disabled", then if the Standard CMOS Features: Halt On is set as "All Errors" or the All, But Keyboard setting is used, system errors will halt. Disabled:This setting is used to disable the head seek test. Although this setting will reduce the amount of time required to perform the head seek for the floppy during startup, it does not perform an accurate error detection of FDD errors.
Boot Up Num Lock Status	This setting turns the NumLock on the keyboard On or OFF (executes or does not execute the NumLock command). The default setting is "OFF". Off: This setting is used to turn the NumLock Off. On: This setting is used to turn the NumLock On.
Gate A20 Option	This setting is used to set the access method for a memory space of more than 1MB. The default setting should be "Normal" for Fail-Safe and "Fast" for Optimized. Normal: This setting is used only for access methods (real mode access) Pertaining to the conventional AT transposing apparatus which use a keyboard controller. Fast: This setting is used for the Gate A20 function for the chip set. This is the original setting used to perform automatic switching between the real mode and the protect mode.
Typematic Rate Setting	This setting is used to enable/disable changes to the repeat conditions. The default setting is "Disabled". Disabled:This setting is used when the apparatus is to be used at a fixed setting, without changing the number of repetitions or the intervals between repetitions. For the fixed setting, a repetition occurs once every 6 seconds with intervals of 250 msec. This is the normal setting. Enabled:This setting is used when the number of repetitions and the intervals between repetitions is changed. For details, refer to Typematic Rate (Chars/Sec.) and Typematic Delay (Msec).
Typematic Rate (Chars/Sec)	This setting is used by to determine how many times an entry is made in a one-second period when a key is held down. The fixed setting is 6 times per second. Additional settings are 8, 10, 12, 15, 20, 24 and 30.
Typematic Delay (Msec)	This setting is used to set the number of Msec for the intervals between data when a key is held down. The fixed setting is 250 Msec. Additional settings are 500, 750 and 1000.
Security Option	Sets the password entry timing. The default setting is "Setup". The password is set in Main Menu: Set Supervisor Password and Main Menu: Set User Password.If a password is not set in these items, this setting will have no significance. The relationships between this setting and the password set are as follows: "Setup" Setting "System" Setting When starting the OS: --- User Password or Supervisor Password When changing BIOS Setup: Supervisor Password Supervisor Password When only displaying BIOS Setup: User Password User Password
OS Select For DRAM > 64MB	This setting is used to specify whether the OS/2 has more than 64MB of memory or not. The default setting is "Non-OS2". Non-OS2:This setting is used when an OS other than an OS2 is used. This is the normal setting. OS2: This setting is used when the OS is an OS2. By using this setting, the method for communicating the mounted memory capacity changes to a method specified by the OS2.

Table 5-3 Advanced BIOS Features menu (continued)

Items	Description
HDD S.M.A.R.T capability	This setting is used to specify whether the S.M.A.R.T (Self-Monitoring, Analysis and Reporting Technology) function is being used or not. If the connection device is not compatible with ATA-3 (Ultra-ATA) standards or above, this means that the device does not support the S.M.A.R.T. function, making this setting invalid. The default setting is "Enabled". Enabled:"Enabled" is used to set the S.M.A.R.T. function. Please note that in order to use this setting a command device is necessary to initiate this function during startup and a separate software package is needed to activate the S.M.A.R.T. function. This is the normal setting. Disabled:This setting is used to disable the S.M.A.R.T function.
Report No FDD For WIN 95	This setting is used to communicate to the Microsoft Windows OS whether an FDD is installed or not (more exactly, the IRQ-6 status) The default setting is "No". No: "No" is the setting used when no communication is made to the OS. This is the normal setting. Yes: This setting is used when an FDD is not installed or when the necessary software has not been installed. More exactly, this setting is used to communicate to the OS that the IRQ-6 used by the FDC has been opened. Please refer to the section on floppy disks regarding the use of FDD.
Video BIOS Shadow	This setting is used to specify whether shadowing is performed or not for each address space when a PC card with an expanded ROM BIOS is attached to the slot. All default settings are set to "Disabled". Disabled:This setting is used when shadowing of the target address spaces is not performed. More exactly, if no PC card is attached to the slot, then it means that the PC card does not have an expanded ROM BIOS mounted on it. Enabled:This setting is used when shadowing of the target address spaces is performed. More exactly, it means that the PC card attached to the slot has an expanded ROM BIOS, such as an SCIS network card, mounted on it.

Advanced Chipset Features Menu

In this menu, set the items that rely on the chipset on the main board, such as the memory and the bus timing setting. Since these settings are executed via Load Optimized Defaults, they are the optimum settings for the system and generally **do not need to be changed**. Be aware that because these settings pertain to the control timing, the apparatus may fail to start up if an incompatible setting is executed.

Table 5-4 Advanced Chipset Features menu

Items	Description
SDRAM CAS Latency Time	This setting sets the number of clocks for the CAS waiting time for the memory (the time required from when the address is specified until the data can be read out). Default setting is "3". Do not change the default setting.
System BIOS Cacheable	This setting enables/disables the System BIOS cache. The default setting is "Disabled". Disabled: Set this to disable the system BIOS cache. Enabled: Set this to enable the system BIOS cache.
Video BIOS Cacheable	This setting enables/disables the Video BIOS cache. The default setting is "Disabled". Disabled: Set this to disable the system BIOS cache. Enabled: Set this to enable the system BIOS cache.
CPU Latency Timer	CPU and Chip set (GMCH: this setting pertains to the access timing for the Graphics Memory Control Hub). The default setting is "Disabled". The normal setting is "Disabled".
Delayed Transaction	Always set this to "Enabled".
CAS# Latency	This setting sets the number of clocks for the video cache memory CAS waiting period (the amount of time required after the address is specified until the data can be read out). There are 2 options, a setting of "2" or "3". The default setting is "3". The normal setting is "3" to ensure a more stable system.
Paging Mode Control	This setting controls the page mode for the video cache memory. The options are "Open" and "Close". The default setting is "Open". The normal setting is "Open" because it operates in the page open mode.
RAS-to-CAS Override	This setting determines how much time is required until performing the transfer to CAS following the video cache memory RAS. The options are the "by CAS# LT setting and the "Override(2)" setting. The default setting is the "by CAS# LT setting. Normally, the CAS# Latency setting is used to automatically set the "by CAS# LT" setting.
RAS# Timing	This setting is used to set the RAS access timing for the video cache memory. The two options are "Fast" and "Slow". The default setting is "Fast". Normally, the "Fast" setting is used to ensure better performance.
RAS# Precharge Timing	This setting sets the number of clocks to allocate to RAS in order to accumulate the necessary charge before refresh of the video cache memory is performed. There are two options, "Fast" and "Slow". The default setting is "Fast". Normally, the "Fast" setting is used to ensure better performance.

Integrated Peripherals Menu

This menu sets the items related to I/O ports such as the IDE controller, the transfer mode, the serial ports, and the parallel port.

Table 5-7 Integrated Peripherals menu

Items	Description
On-chip Primay/ Secondary PCI IDE	This setting is to enable/disable the IDE controller housed in the chip set (ICH2). All of the default settings are set as "Enabled". Always use the default "Enabled" setting. If the "Disabled" settings are used, the IRQ resources are released and become available for other devices. If the IRQ resources that are released, IRQ-14 is released for the primary and IRQ-15 for the secondary.
IDE Primary/ Secondary: Master/Slave PIO	This setting sets the transfer mode for the IDE device connected to each interface. All of the default settings are "Auto". The PIO is normally set as "Auto," but due to the auto detection performed during POST, the optimum method used by the connection device is then set as BIOS. If devices in different modes are connected to the master and the slave, the transfer mode will be fixed at a slow speed; therefore, it is necessary to pay particular attention to the connection to each port. If a setting is made that exceeds the maximum mode supported by the device connected, note that data errors may occur. If On-Chip Primary/Secondary PCI IDE is set to "Disabled," the corresponding items cannot be selected.
IDE Primary/ Secondary: Master/Slave UDMA	This setting sets the DMA transfer mode for the IDE device connected to each interface. All default settings are set as "Auto". The UDMA is normally set as "Auto, but due to the auto detection performed during the POST, the DMA mode support status for the connection device is determined as BIOS. If any of the devices connected does not support DMA mode, the maximum mode that device supports will be set. If On-Chip Primary/Secondary PCI IDE is set to "Disabled," the corresponding items cannot be changed. When using the UDMA, set as "Auto" The transfer mode for the DMA mode compatible device connected to the IDE interface in each OS can be changed to the DMA mode using the following methods. For BIOS settings, set IDE ... UDMA to "Auto." This has been supported for the OS for EPSON. 1. Windows NT Using a tool in Service Pack 6a, Refer to "Chapter 3" 2. Windows 98 Setting the OS, Refer to "Chapter 3" 3. Windows 2000 By applying Chip Set Driver, the mode can be automatically changed to the DMA mode. 4. Windows XP The DMA mode is automatically set upon installing the Windows XP operating system.
USB Controller	This setting is used to enable/disable the USB controller housed in the chip set (ICH2). The default setting is set as "Enabled". Perform setting according to your system configuration (whether or not a USB device is connected). If the "Disabled" setting is used, USB Keyboard Support can be selected and this function is not supported. The PnP BIOS automatically determines the IRQ resource settings for the USB controller.
USB Keyboard Support	This setting enables/disables the emulation functions for the USB keyboard. The default setting is "Disabled".
AC97 Audio	This setting enables/disables the audio controller housed in the chip set (ICH2). The default setting is "Auto". Perform setting (using or not using the audio controller) according to your system configuration. Auto: Choose this if the audio controller built in the chip set (ICH2) is used. Disabled: Choose this if the audio controller built in the chip set (ICH2) is not used. The IRQ resources for the audio controller are allocated if the "Auto" setting is selected; they are not allocated if the "Disabled" setting is selected.

Table 5-7 Integrated Peripherals menu (continued)

Items	Description
Onboard LAN Device	This setting enables/disables the network controller housed in the chip set (ICH2). The default setting is "Enabled".Perform setting (using or not using the network controller) according to your system configuration. Enabled: Choose this if the network controller built in the chip set (ICH2) is used. Disabled: Choose this if the network controller built in the chip set (ICH2) is not used. The IRQ resources for the network controller are allocated as follows: Enabled: PnP BIOS automatically allocates IRQ resources. Disabled: IRQ resources are not allocated.
IDE HDD Block Mode	This setting enables/disables the IDE-HDD multi-sector transfer mode. The default setting is "Enabled". Always use the default setting. Enabled: Choose this to set the multi-sector transfer mode.If data is stored extending over continuous sectors, performance will improve. Disabled: This sets the single sector transfer mode.
Onboard Lan Boot ROM	This setting enables/disables the PXE Boot Agent function. When the Onboard LAN Device is "Disabled", the Onboard Lan Boot ROM setting does not function. The default setting is "Enabled". Enabled: Choose this if the PXE Boot Agent function is used. Disabled: Choose this if the PXE Boot Agent function is not used. When OS mistakes the PCI I/F Card, it is possible to avoid in setting "Disabled". When "Disabled"setting, the PXE Boot Agent function cannot be used.
Onboard FDC Controller	This setting enables/disables the floppy controller inside the S-I/O (W83627). The default setting is "Enabled". Always use the default setting. Enabled: Choose this if the FDD is used. Disabled: Choose this if the FDD is not used.
Onboard Serial Port 1/2/3/4	This setting enables/disables serial controller #1/2/3/4 (combination of the I/O address and IRQ resource for serial port #1) inside the S-I/O (W83627). The default setting are as follows. Serial Port 1 : 3F8/IRQ4 Serial Port 2 : 2F8/IRQ3 Serial Port 3 : 3E8/IRQ11 Serial Port 4 : 2E8/IRQ10 There are options, the "3F8/IRQ4" setting, "2F8/IRQ3" setting, "3E8/IRQ4" setting, "2E8/IRQ3" setting, "3F8/IRQ11" setting, "2F8/IRQ10" setting, "3E8/IRQ11" setting, "2E8/IRQ10" setting, "338/IRQ11" setting, "238/IRQ10" setting, and "Disabled" setting. Make the necessary changes in accordance with the system configuration.
Onboard Serial Port 5/6, Serial Port 5/6 Use IRQ	This setting enables/disables serial controller #5/6 (combination of the I/O address and IRQ resource for serial port #1) inside the S-I/O (W83697UF). The default setting is "Disabled". There are options of (Onboard Serial Port 5/6), the "3F8" setting, "2F8"setting, "3E8"setting, "3E8"setting, "338"setting, "238"setting and "Disabled" setting. There are options of (Serial Port 5/6 Use IRQ), the "IRQ3" setting, "IRQ4" setting, "IRQ5" setting, "IRQ7" setting, "IRQ10" setting, "IRQ11" setting, "IRQ14" setting and "IRQ15" setting. Make the necessary changes in accordance with the system configuration.
Onboard Parallel Port	This setting enables/disables the parallel controller (combination of the I/O address and IRQ resource for the parallel port) inside the S-I/O (W83627F). The default setting is "378/IRQ7". There are 4 options, the "Disabled" setting, "378/IRQ7" setting, "278/IRQ5" setting and the "3BC/IRQ7" setting. When using the "Disabled" setting, system resources can be opened and the port can be used with other devices. Make the necessary changes in accordance with the system configuration. Note that since an 8-byte continuous I/O space is needed when setting the parallel port mode to "EPP", the 3BC/IRQ7 setting cannot be used.

Table 5-7 Integrated Peripherals menu (continued)

Items	Description
Parallel Port Mode	This setting sets the parallel port mode. The default setting is "Normal". There are 4 options, "Normal", "EPP", "ECP" and "ECP+EPP". Make the necessary changes in accordance with the system configuration. Note that since an 8-byte continuous I/O space is needed when using the "EPP" setting and "ECP+EPP" setting, the 3BC/IRQ7 setting cannot be used. In addition, a DMA channel number is required for the DMA transfer when using the "ECP" setting and "ECP+EPP" setting. The definitions for each mode are listed below. Normal: Also called the SPP (Standard Parallel Port), this mode is for one direction only. EPP: EPP stands for Enhanced Parallel Port and is an improvement for the Normal mode I/O throughput. EPP allows for faster data transfer than Normal mode. ECP: ECP stands for Extended Capabilities Port, and it is a mode that supports DMA transfer and Run Length Enhanced. ECP allows for faster data transfer.
EPP Mode Select	EPP Mode Select sets the type of EPP mode. The default setting is "EPP1.7". There are 2 options, the EPP1.7 setting and the "EPP1.9 " setting. Make the necessary changes in accordance with the system configuration.
ECP Mode Use DMA	Sets the DMA channel number for the "ECP" and "ECP+EPP" setting. The default setting is "3". There are 2 options, "1" and "3". Make the necessary changes in accordance with the system configuration.

Power Management Setup Menu

In this menu, set the items related to power management.

Table 5-5 Power Management Setup menu

Items	Description
Video Off Method	Sets the method to turn the monitor off for the Video Off Mode. The default setting is DPMS. Change the setting to match the system configuration (type of connected monitor). The settings are explained below. Bland Screen: Use this setting when connecting an earlier version monitor that is compatible with power management terminals that only have a video off function. V/H SYNC+Blank: This stops output of the horizontal sync signal, vertical sync signal, and display signal from the video controller. Use this setting for monitors in which power management is enabled when these signals end. DPMS: This activates BIOS control in accordance with the Display Power Management System (DPMS) function of the video controller. The monitor must be equipped with the DPMS function.
Video Off In Suspend	Use this setting to turn off the video when entering Suspend Mode. The default setting is Yes. Always use the default setting. Yes: Choose this to stop video output in Suspend Mode. No: With this setting video output continues even in Suspend Mode.
Suspend Type	Set the Suspend method of S1(POS) mode. The default is "PwrOn Suspend". There are two options; "PwrOn Suspend" and "Stop Grant".
MODEM Use IRQ	Use this setting on a system with a modem when access to the modem (IRQ resource trap) is treated as a resume event from Suspend Mode or when the power is turned on by a ring signal (when the Power On by Ring setting is set to Enabled). The default setting is NA. This setting is the IRQ resource number allocated to the modem (serial port).

Table 5-5 Power Management Setup menu (continued)

Items	Description
Suspend Mode	Select the time it takes for the system to enter Suspend Mode by BIOS from option settings. The default setting is Disabled. Be careful not to set the time value too small as the system may frequently switch between Full-On Mode and Suspend Mode. Setting for OS Windows NT: Because entering the Suspend mode on Windows NT creates a delay in the timer of the operating system, be sure that the suspend timer setting is functioning properly. Windows 98/2000/XP: For Windows 98 and later operating systems, set the suspend timer from the system. The BIOS suspend timer is ignored regardless of the setting.
HDD Power Down	Select the item it takes for the HDD to enter the Power Down mode by BIOS from option setting. The default setting is "Disabled". This function was added from Ver.2.11.02. And the version of before Ver.2.11.01 does not have this function.
Soft-Off by PWR-BTTN	Sets the function of the Power Button (switch) when pressed. The default setting is Instant-Off. The basic operations of BIOS are as follows. Instant-Off: The power supply is turned off immediately when the Power button is pressed. Delay 4 Sec.: If the Power button is pressed and held for less than 4 seconds: 1) Shift to the Suspend mode if this operation is performed in the Full-On mode. 2) Shift to the Full-On mode if this operation is performed in the Suspend mode. If the Power button is pressed and held for at least 4 seconds: 1) Shift to the Suspend mode once, and the power supply is forcefully turned off after 4 seconds. Disabled: 1) Nothing happens when the Power button is pressed in the Full-On mode. 2) Recover to the Full-On mode when the Power button is pressed in the Suspend mode. 3) If the Power button is pressed and held for at least 4 seconds, the power supply is forcefully turned off. If the power is forcibly turned off by continuously pressing the power button for at least four seconds when "Delay 4 Sec." is set, the Wake On LAN (WOL) function cannot be used next time the power is turned on. In this case, restart the system by using the power button and execute normal power off by using the OS. The WOL function can then be used at next startup.
Wake-Up by PCI card	Use this item to have the BIOS perform recovery from the Suspend mode to the Full-On mode using the signal from the PC card mounted in the PCI slot, as well as to use the WOL function. The default setting is "Disabled." Enabled: Choose this to have the BIOS handle as a recovery event or to use the WOL function. Disabled: Choose this not to have the BIOS handle as a recovery event or not to use the WOL function.
Power On by Ring	Use this setting enable/disable turning the power on with the modem ring signal. The default setting is Disabled. Enabled: Choose this if the power is turned on using the ring signal.Also change the setting for Modem Use IRQ. Disabled: Choose this if the power is not turned on using the ring signal.

Table 5-5 Power Management Setup menu (continued)

Items	Description
Resume by Alarm Date(of Month) Alarm Time(hh:mm:ss) Alarm	Use this setting to turn on the power with the alarm (date and time). Set Resume by Alarm to the desired setting to enable or disable this function. Enabled: Choose this to enable the alarm function.By selecting this, Date (of Month) Alarm and Time (hh:mm:ss) Alarm can also be set. Disabled: Choose this to disable the alarm function.This is the default setting. Use Date (of Month) Alarm to set the appropriate date. Use Time (hh:mm:ss) Alarm to set the appropriate time. Once the setting is made, the power turns on or the system resumes to Full-On Mode on the selected day and time each month.
System Battery	Sets the system battery is equipped/not equipped. The default is "Not Equipped". There are two options; "Not Equipped" and "Equipped".
Reload Global Timer Events	Sets the event to reload (reset) the BIOS power management timer. This is treated as a resume event from Suspend Mode. Primary IDE 0: IDE primary master access (I/O trap) is generated. Primary IDE 1: IDE primary slave access (I/O trap) is generated. Secondary IDE 0: IDE secondary master access (I/O trap) is generated. Secondary IDE 1: IDE secondary slave access (I/O trap) is generated. FDD, COM, LPT Port: Access to the floppy disk drive, serial port, or the parallel port is generated. PCI PIRQ(A-D)#: APCI interrupt request (I/O trap) is generated. The default setting are as follows. Primary IDE 0: Enabled Primary IDE 1: Disabled Secondary IDE 0: Disabled Secondary IDE 1: Disabled FDD, COM, LPT Port: Enabled PCI PIRQ(A-D)#: Disabled

Supplementary Explanation for Power Management

Hard Disk Drive Power Down Mode

The HDD Power Down Timer settings are made through the OS in Windows XP/2000/98, but in Windows NT/95 and DOS, the settings are made through the BIOS, as detailed below. To have the HDD motor stop when the HDD is not accessed for a certain time, follow the steps below:

1. Start up the BIOS Setup Utility.
2. Select [Power Management Setup].
3. Select [HDD Power Down].
4. Select the time in the option.
5. Save it and restart.

After the restart, when there is no HDD access for the time set, the HDD Power Down Timer switches over to HDD Power Down and the motor of the HDD stops.

Note:
This function can be used only with BIOS version 2.13.00 or higher. If your BIOS version is before 2.12, upgrade the BIOS and then do the above procedure.

When access to HDD occurs, the motor of HDD begins to start and the HDD becomes accessible.

Windows 98/2000/XP

Windows 98 and later operating systems have a hard disk drive power down function. Therefore, this function can be used to control hard disk drive power down in these operating systems.

PNP/PCI Configurations Menu

In this menu, set the IRQ and DMA assignment methods and other items. Do not change the default settings under normal conditions.

Table 5-6 PNP/PCI Configurations menu

Items	Description
PNP OS Installed	Use this setting to select whether the operating system is compatible with Plug and Play (PnP). The default setting is Yes. Always use the default setting.
Reset Configuration Data	Use this setting to reset the PnP information recorded in the Extended System Configuration Data (ESCD) block when restarting the system. The default setting is Disabled. Always use the default setting.
Resources Contorlled By	Use this setting to select whether the allocation of the I/O address, IRQ, DMA, and other system resources is to be done by PnP BIOS or by the user. The default setting is Auto (ESCD). Always use the default setting.
IRQ Resources	Sets the handling of IRQ Resources (interrupt number). You can change IRQ Resources 3, 4, 5, 7, 9, 10, 11, 12, 14, and 15. The default setting is PCI/ISA PnP for each resource. PCI/ISA PnP: The target IRQ resources are allocated automatically (dynamic allocation) by PnP BIOS, as is the case when the Resource Controlled By setting is set to Auto (ESCD). Legacy ISA: The target IRQ resources are reserved (static allocation) and are not affected by the PnP BIOS automatic (dynamic) allocation. When making changes, be careful not to create a resource conflict.
DMA Resources	Sets the handling of DMA resources (DMA channels). You can change DMA Resources 0, 1, 3, 5, 6, and 7. The default setting is PCI/ISA PnP for each resource. PCI/ISA PnP: The target DMA resources are allocated automatically (dynamic allocation) by PnP BIOS, as is the case when the Resource Controlled By setting is set to Auto (ESCD). Legacy ISA: The target IRQ resources are reserved (static allocation) and are not affected by the PnP BIOS automatic (dynamic) allocation. When making changes, be careful not to create a resource conflict.
Memory Resources	Use this setting to position the Upper Memory Block (UMB) in the expansion memory range. The normal setting is default setting.
Reserved Memory Base	Sets the position address. The default setting is "N/A", indicating that no position is selected. The only position address that can be selected is "D000".
Reserved Memory Length	If a position address is set, select the memory size for that address. The default setting is “64K”. The only memory size that can be selected is “64K”, the same as the default setting.
PCI/VGA Palette Snoop	When a video card is added or when using an MPEG playback card at the same time, the on-screen color may not display correctly for a period of time. If this occurs, you may be able to fix the problem by changing the setting to Enabled. The default setting is Disabled.

Defaults and Selectable Options

The BIOS default and selectable options of each item are as follows. Some items are not displayed and cannot be changed, depending on the settings of their master items.

Standard CMOS Features

1) Date, Time

Item	Options	Notice
Day of the week	—	Day of the week: Automatically determined by the settings of Year, Month, and Day.
Month	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec	Year, Month, Day: Selected from the options. Last day of the current month: Either 28, 30, or 31 is automatically determined according to the specified month. When the year is a leap year, the last day of February will automatically be 29. Hour, Minute, Second: Selected from the options.
Day	1- Last day of the current month	
Year	1999 - 2099	
Hour	0 - 23	
Minute	0 - 59	
Second	0 - 59	

2) IDE Primary master, IDE primary slave, IDE secondary master, IDE secondary slave

Item	Options	Notice
IDE Primary Master / Primary Slave / Secondary Master / Secondary Slave	None Auto Manual	Set the detection method for the connection device. None: The connection detection is not executed. It is treated as disconnected software Auto: Auto detection is executed. The information held by the device is automatically applied. Manual: The information set by the user is applied.
Access Mode	CHS LBA Large Auto	Set the access Method to the connected device. Note that when the device detection method is set as "None" it cannot be changed. CHS: Access for the device is shortened with "Cylinder Head Sector (Addressing) "having 0 to 1023 cylinders, 0 to 15 heads and 0 to 63 sectors. LBA: Shortened with the Logical Block Addressing Method, the entire memory area is divided into access units and those serial numbers are used for accessing. Large: This is the access method for extended CHS. When the number of CHS cylinders exceeds the normal amount of 1024 cylinders, the address is not accessible so the CHS is extended. Auto: BIOS determines the optimum method based on the information obtained by the device. The LBA method is normally used.
Capacity	-----	This item indicates the memory capacity for the connection device. The following differences occur, depending on the device detection method used. Auto: The value calculated according to information obtained by the device is displayed. Manual: The value calculated according to information specified by the user is displayed.
Cylinder	-----	This item indicates the number of cylinders for the connection device. The following differences occur, depending on the device detection method used. Auto: The value obtained by the device is displayed. Manual: The user can set the value within a range of 0-65,535 only when the access method is set as "CHS".
Head	-----	This item indicates the number of heads for the connection device. The following differences occur, depending on the device detection method used. Auto: The value obtained by the device is displayed. Manual: The user can set the value within a range of 0-255 only when the access method is set as "CHS".
Prcomp	-----	This item indicates the number of write compensation cylinders for the connection device. The following differences will occur, depending on the device detection method used. Auto: The value obtained by the device is displayed. Manual: The user can set the value within a range of 0-65,535 only when the access method is set as "CHS". (When connecting a device for which there is no particular value specified, a maximum value of 65,535 is specified)

Item	Options	Notice
Landing Zone	-----	This item indicates the head fixed track number for the connection device. The following differences will occur, depending on the device detection method used. Auto: The value obtained by the device is displayed. Manual: The user can set the value within a range of 0-65,535 only when the access method is set as "CHS". (When connecting a device for which there is no particular value specified, the number "1" is specified as the maximum number of cylinders).
Sector	-----	This item indicates the number of sectors for the connection device. The following differences will occur, depending on the device detection method used. Auto: The value obtained by the device is displayed. Manual: The user can set the value within a range of 0-255 only when the access method is set as "CHS".

3) FDD, Error Halt

The items related to the FDD and error that halt at boot-up are as follows.

Item	Options	Fail-Safe Default	Optimized Default
Drive A	None 360K , 5.25 in. 1.2M , 5.25 in. 720K , 3.5 in. 1.44M, 3.5 in. 2.88M, 3.5 in.	None	1.44M, 3.5 in.
Halt On	All Errors No Errors All,But Keyboard All,But Diskette All,But Disk/Key	All Errors	All Errors

Notes: When the **`Drive A`** is **`None`** setting, the system resources, such as the IRQ, cannot be released.

Advanced BIOS Features

The basic items related to BIOS boot-up are as follows.

Item	Options	Fail-Safe Default	Optimized Default
Virus Warning	Disabled Enabled	Enabled	Disabled
External Cache	Disabled Enabled	Enabled	Enabled
CPU L2 Cache ECC Checking	Disabled Enabled	Enabled	Enabled
Quick Post	Disabled Enabled	Disabled	Disabled
Quick Power On Self Test	Disabled Enabled	Enabled	Enabled
First Boot Device	Floppy LS120 HDD-0 SCSI CDROM HDD-1 HDD-2 HDD-3 ZIP100 LAN Disabled	Floppy	Floppy
Second Boot Device	Floppy LS120 HDD-0 SCSI CDROM HDD-1 HDD-2 HDD-3 ZIP100 LAN Disabled	HDD-0	HDD-0
Third Boot Device	Floppy LS120 HDD-0 SCSI CDROM HDD-1 HDD-2 HDD-3 ZIP100 LAN Disabled	SCSI	SCSI
Boot Other Device	Disabled Enabled	Enabled	Enabled
Boot Up Floppy Seek	Disabled Enabled	Enabled	Enabled
Boot Up NumLock Status	Off On	Off	Off

Item	Options	Fail-Safe Default	Optimized Default
Gate A20 Option	Normal Fast	Normal	Fast
Typematic Rate Setting *	Disabled Enabled	Disabled	Disabled
Typematic Rate (Chars/Sec) *	6 8 10 12 15 20 24 30	6	6
Typematic Delay (Msec) *	250 500 750 1000	250	250
Security Option	Setup System	Setup	Setup
OS Select For DRAM > 64MB	Non-OS2 OS2	Non-OS2	Non-OS2
HDD S.M.A.R.T Capability	Disabled Enabled	Enabled	Enabled
Report No FDD For WIN 95	No Yes	No	No
C8000-CBFFF Shadow	Disabled Enabled	Disabled	Disabled
CC000-CFFFF Shadow	Disabled Enabled	Disabled	Disabled
D0000-D3FFF Shadow	Disabled Enabled	Disabled	Disabled
D4000-D7FFF Shadow	Disabled Enabled	Disabled	Disabled
D8000-DBFFF Shadow	Disabled Enabled	Disabled	Disabled
DC000-DFFFF Shadow	Disabled Enabled	Disabled	Disabled

* When `Typematic Rate Setting` is a Disabled, `Typematic Rate (Chars/Sec)` and `Typematic Delay (Msec)` cannot be selected.

Advanced Chipset Features

The setup items related to the chipset are as follows.

Item	Options	Fail-Safe Default	Optimized Default
SDRAM CAS Latency Time	3 2	3 (Do not change)	3 (Do not change)
System BIOS Cacheable	Disabled Enabled	Disabled	Disabled
Video BIOS Cacheable	Disabled Enabled	Disabled	Disabled
CPU Latency Timer	Disabled Enabled	Disabled	Disabled
Delayed Transaction	Disabled Enabled	Enabled	Enabled
CAS# Latency	3 2	3	3
Paging Mode Control	Close Open	Open	Open
RAS-to CAS Override	by CAS# LT Override(2)	by CAS# LT	by CAS# LT
RAS# Timing	Slow Fast	Fast	Fast
RAS# Precharge Timing	Slow Fast	Fast	Fast

Integrated Peripherals

The setup items related to onboard peripherals are as follows.

Item	Options	Fail-Safe Default	Optimized Default
On-Chip Primary PCI IDE	Disabled Enabled	Enabled	Enabled
On-Chip Secondary PCI IDE	Disabled Auto	Enabled	Enabled
IDE Primary Master PIO	Auto Mode 0 Mode 1 Mode 2 Mode 3 Mode 4	Auto	Auto
IDE Primary Slave PIO	Auto Mode 0 Mode 1 Mode 2 Mode 3 Mode 4	Auto	Auto

Item	Options	Fail-Safe Default	Optimized Default
IDE Secondary Master PIO	Auto Mode 0 Mode 1 Mode 2 Mode 3 Mode 4	Auto	Auto
IDE Secondary Slave PIO	Auto Mode 0 Mode 1 Mode 2 Mode 3 Mode 4	Auto	Auto
IDE Primary Master UDMA	Disabled Auto	Auto	Auto
IDE Primary Slave UDMA	Disabled Auto	Auto	Auto
IDE Secondary Master UDMA	Disabled Auto	Auto	Auto
IDE Secondary Slave UDMA	Disabled Auto	Auto	Auto
USB Controller	Disabled Enabled	Enabled	Enabled
USB Keyboard Support	Disabled Enabled	Disabled	Disabled
AC97 Audio	Auto Disabled	Auto	Auto
Onboard LAN Device	Disabled Enabled	Enabled	Enabled

Item	Options	Fail-Safe Default	Optimized Default
IDE HDD Block Mode	Disabled Enabled	Disabled	Enabled
Onboard Lan Boot ROM	Disabled Enabled	Enabled	Enabled
Onboard FDC Controller	Disabled Enabled	Enabled	Enabled
Onboard Serial Port 1	Disabled 3F8/IRQ4 2F8/IRQ3 3E8/IRQ4 2E8/IRQ3 3F8/IRQ11 2F8/IRQ10 3E8/IRQ11 2E8/IRQ10 338/IRQ11 238/IRQ10	3F8/IRQ4	3F8/IRQ4
Onboard Serial Port 2	Disabled 3F8/IRQ4 2F8/IRQ3 3E8/IRQ4 2E8/IRQ3 3F8/IRQ11 2F8/IRQ10 3E8/IRQ11 2E8/IRQ10 338/IRQ11 238/IRQ10	2F8/IRQ3	2F8/IRQ3
Onboard Serial Port 3	Disabled 3F8/IRQ4 2F8/IRQ3 3E8/IRQ4 2E8/IRQ3 3F8/IRQ11 2F8/IRQ10 3E8/IRQ11 2E8/IRQ10 338/IRQ11 238/IRQ10	3E8/IRQ11	3E8/IRQ11
Onboard Serial Port 4	Disabled 3F8/IRQ4 2F8/IRQ3 3E8/IRQ4 2E8/IRQ3 3F8/IRQ11 2F8/IRQ10 3E8/IRQ11 2E8/IRQ10 338/IRQ11 238/IRQ10	2E8/IRQ10	2E8/IRQ10

Item	Options	Fail-Safe Default	Optimized Default
Onboard Serial Port 5	Disabled 3F8 2F8 3E8 2E8 338 238	Disabled	Disabled
Serial Port 5 Use IRQ	IRQ3 IRQ4 IRQ5 IRQ7 IRQ10 IRQ11 IRQ14 IRQ15	IRQ7	IRQ7
Onboard Serial Port 6	Disabled 3F8H 2F8H 3E8H 2E8H 338H 238H	Disabled	Disabled
Serial Port 6 Use IRQ	IRQ3 IRQ4 IRQ5 IRQ7 IRQ10 IRQ11 IRQ14 IRQ15	IRQ5	IRQ5
Onboard Parallel Port	Disabled 378/IRQ7 278/IRQ5 3BC/IRQ7	378/IRQ7	378/IRQ7
Parallel Port Mode	Normal EPP ECP ECP+EPP	Normal	Normal
EPP Mode Select	EPP1.9 EPP1.7	EPP1.9	EPP1.7
ECP Mode Use DMA	1 3	3	3

Notes: The **`Serial Port 5 Use IRQ`** can be selected if the **`Onboard Serial Port 5`** is changed to I/O address setting. The IRQ resource is not assigned in **`"Disabled"`** setting.

The **`Serial Port 6 Use IRQ`** can be selected if the **`Onboard Serial Port 6`** is changed to I/O address setting. The IRQ resource is not assigned in **`"Disabled"`** setting.

When `Onboard Parallel Port` is `Disabled` setting, `Parallel Port Mode` ,`EPP Mode Select` and `ECP Mode Use DMA` are `displayed`, and the IRQ Resource is not assigned.

When the **`Parallel Port Mode`** for the **`EPP Mode Select`** is set as **`"EPP"`** or as **`"ECP+EPP"`**, the user can then perform the necessary settings.

When the **`Parallel Port Mode`** for the **`ECP Mode Use DMA`** is set as **`"ECP"`** or as **`"ECP+EPP"`**, the user can then perform the necessary settings.

Power Management Setup

The setup items related to power management are as follows.

Item	Options	Fail-Safe Default	Optimized Default
Video Off Method	Blank Screen V/H SYNC+Blank DPMS	Blank Screen	DPMS
Video Off In Suspend	No Yes	Yes	Yes
Suspend Type	Stop Grant PwrOn Suspend	PwrOn Suspend	PwrOn Suspend
MODEM Use IRQ	NA 3 4 5 7 10 11 14 15	3	NA
Suspend Mode	Disabled 1Min 2Min 4Min 8Min 12Min 20Min 30Min 40Min 1 Hour	Disabled	Disabled
HDD Power Down	Disabled 1 Min 2 Min 3 Min 4 Min 5 Min 6 Min 7 Min 8 Min 9 Min 10 Min 11 Min 12 Min 13 Min 14 Min 15 Min	Disabled	Disabled

Item	Options	Fail-Safe Default	Optimized Default
Soft-Off by PWR-BTTN	Instant-Off Delay 4 Sec. Disabled	Instant-Off	Instant-Off
Wake-Up by PCI card	Disabled Enabled	Disabled	Disabled
Power On by Ring	Disabled Enabled	Disabled	Disabled
Resume by Alarm	Disabled Enabled	Disabled	Disabled
Date (of Month) Alarm	-----	-----	-----
Time (hh:mm:ss) Alarm	-----	-----	-----
Primary IDE 0	Disabled Enabled	Enabled	Enabled
Primary IDE 1	Disabled Enabled	Disabled	Disabled
Secondary IDE 0	Disabled Enabled	Disabled	Disabled
Secondary IDE 1	Disabled Enabled	Disabled	Disabled
FDD, COM, LPT Port	Disabled Enabled	Disabled	Enabled
PCI,PIRQ (A-D)#	Disabled Enabled	Disabled	Disabled

PnP/PCI Configurations

The setup items related to PCI configurations (Plug and Play) are as follows.

Item	Options	Fail-Safe Default	Optimized Default
PNP OS Installed	No Yes	Yes	Yes
Reset Configuration Data	Disabled Enabled	Disabled	Disabled
Resource Controlled By	Auto(ESCD) Manual	Auto(ESCD)	Auto(ESCD)
IRQ-3 assigned to	PCI/ISA PnP Legacy ISA	PCI/ISA PnP	PCI/ISA PnP
IRQ-4 assigned to	PCI/ISA PnP Legacy ISA	PCI/ISA PnP	PCI/ISA PnP
IRQ-5 assigned to	PCI/ISA PnP Legacy ISA	PCI/ISA PnP	PCI/ISA PnP
IRQ-7 assigned to	PCI/ISA PnP Legacy ISA	PCI/ISA PnP	PCI/ISA PnP
IRQ-9 assigned to	PCI/ISA PnP Legacy ISA	PCI/ISA PnP	PCI/ISA PnP
IRQ-10 assigned to	PCI/ISA PnP Legacy ISA	PCI/ISA PnP	PCI/ISA PnP
IRQ-11 assigned to	PCI/ISA PnP Legacy ISA	PCI/ISA PnP	PCI/ISA PnP
IRQ-12 assigned to	PCI/ISA PnP Legacy ISA	PCI/ISA PnP	PCI/ISA PnP
IRQ-14 assigned to	PCI/ISA PnP Legacy ISA	PCI/ISA PnP	PCI/ISA PnP
IRQ-15 assigned to	PCI/ISA PnP Legacy ISA	PCI/ISA PnP	PCI/ISA PnP
DMA-0 assigned to	PCI/ISA PnP Legacy ISA	PCI/ISA PnP	PCI/ISA PnP
DMA-1 assigned to	PCI/ISA PnP Legacy ISA	PCI/ISA PnP	PCI/ISA PnP
DMA-3 assigned to	PCI/ISA PnP Legacy ISA	PCI/ISA PnP	PCI/ISA PnP
DMA-5 assigned to	PCI/ISA PnP Legacy ISA	PCI/ISA PnP	PCI/ISA PnP
DMA-6 assigned to	PCI/ISA PnP Legacy ISA	PCI/ISA PnP	PCI/ISA PnP
DMA-7 assigned to	PCI/ISA PnP Legacy ISA	PCI/ISA PnP	PCI/ISA PnP

Notes: When **`Resources Controlled By`** is set to Manual, **`IRQ Resources`**, **`DMA Resources`**, and **`Memory Resources`** can be set by the user.

Item	Options	Fail-Safe Default	Optimized Default
Reserved Memory Base	N/A D000	N/A	N/A
Reserved Memory Length	64K	64K	64K
PCI/VGA Palette Snoop	Disabled Enabled	Disabled	Disabled

Notes: When **`Memory Resource`** is selected, Reserved Memory Base and Reserved Memory Size can be set from the advanced settings screen.

For Reserved Memory Base, N/A and D000 can be selected from the option settings.

For Reserved Memory Size, 64K is the only option setting that can be selected.

Setting a Password

Select the password setting option (**`Set Supervisor Password`** or **`Set User Password`**) from the main menu, and the following message is displayed in the center of the screen. Type a password. The password is case sensitive and made up of up to eight alphanumeric characters.

```
ENTER PASSWORD:
```

Typing a password clears any previously entered password. After you press **Enter**, the message below is displayed.

```
CONFIRM PASSWORD:
```

Retype the password you typed. If you do not want to use any password, simply press **Enter** at both prompts. The password will be cleared, and the password function will be disabled.

If you forget your password, short pins 2 and 3 of jumper JP5 for IR-320 and turn on the power to clear the contents of the CMOS. After clearing the CMOS, be sure to perform the following:

- ❑ Remove the jumper cap from pins 2 and 3 of jumper JP5
- ❑ Execute **`LOAD Optimized Defaults`** (from the main menu of the BIOS setup utility)
- ❑ Reset BIOS (necessary items)

To abort the process, press **Esc**.

Power On Self-Test (POST)

The IR-320 inspects the system environment setting and the hardware by the Power On Self Test (POST). When an error is detected, the error message is displayed, and beeps are produced. Error messages are listed in following clause.

Beep sounds

The beep sounds when detecting the following errors.

- ❑ The memory errors are notified by repeating long beeps. Check the DIMM installation.
- ❑ The video errors are notified by repeating one long beep and two short beeps. The video controller of the main board may be faulty.
- ❑ When detecting an error except the memory and the viceo, POST messages are displayed with the short beep.

POST messages(Error detection)

The following is a list of POST messages. An error message may be followed by a prompt to press **F1** to continue or to press **Del** to enter setup.

Table 5-8 POST messages

Message	Description
BIOS ROM checksum error — System halted.	The checksum of the BIOS code in the BIOS chip is incorrect, the possibility to mistake by the BIOS code is shown.
CMOS battery failed.	The COMS battery is no longer functional. Replace the lithium battery of the main board.
CMOS checksum error — Defaults loaded.	The Checksum of the CMOS is incorrect, so the system loads the default equipment configuration. A checksum error may indicate that the COMS is corrupt. This error may be caused by a weak battery. Check the lithium battery, and replace it if necessary.
DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER	When the disk that the system file is not installed in the FDD is inserted, pull out it from the FDD and press Enter. When the system file cannot be detected in "First Boot Device", "Second Boot Device", "Third Boot Device" and "Boot Other Device", set the floppy disk which a system disk is installed in, a CD-ROM or the other device, and then press Enter.
Press **Esc** to skip memory test.	The user may press **Esc** to skip the full memory test.
Floppy disk(s) fail(**).	Cannot find or initialize the floppy drive controller or the floppy drive. Check the FDD or the connection whether or not there is an error in the FDD setting of the BIOS.
HARD DISK(S) FAIL (**).	Cannot find or initialize the hard drive controller or the hard drive. This message is displayed when the sector verify error occurs while accessing the hard disk.
PRESS F1 TO DISABLE NMI, F2 TO REBOOT	A Non-Maskable Interrupt (NMI) occurs during POST. Press F1 to clear the MNI and then continue with POST, and press F2 to reboot.

POST processing message

The BIOS displays the message of the POST processing while POST (Power On Self Test). These messages are displayed until the operation system is booted. When the following message is displayed, input according to the message. So another processing is done.

Table 5-9 POST processing messages

Message	Description
Press DEL to enter SETUP, ESC to skip memory test Press DEL to enter SETUP	This message is displayed in the lower left of the screen. Press ESC to omit the full memory test. Press DEL to start POST again.
Press F10 to run device diagnostics program	Press F10 to boot the device diagnostics utility.
(Reference) EPSON IM-320 BIOS Ver X.YY.ZZ	The version of the BIOS is displayed.

Chapter 6
Device Diagnostics Utility

The communication line between the devices connected to the IR-320 can be tested with the device self-diagnostic utility.

With the device self-diagnostic utility, the following tests can be performed.

- ❏ Connection condition of each device
- ❏ Printing test for the TM printer
- ❏ Display test for the customer display
- ❏ Operational test for the cash drawer
- ❏ Loop-back test for the serial ports
- ❏ Loop-back test for the LPT1 port
- ❏ Printing test for the printer connected to LPT1

Conditions for Running Device Diagnostics

If the following conditions are not satisfied, self-diagnosis for each device cannot be performed.

Table 6-1 Conditions

Setting	Condition
Connection to the TM printer	The TM printer needs to be connected to the IR-320 body. Even if you will not test the TM printer, connect the TM printer to either the COM port or LPT1.
Setting of the TM printer DIP switches	Set the receive buffer to the maximum. Set the selection switch (connection/non-connection of the customer display) to non-connection (if there is a selection switch). If the TM printer does not have an ID function (ESC/POS **GS I** command), set the communication settings following the instructions below. Baud rate: 9600 bps Word length: 8 bits Parity: None See the instruction manual for the TM printer for the setup procedure.
Customer display connect port	When testing the customer display, connect the customer display to the customer display port.

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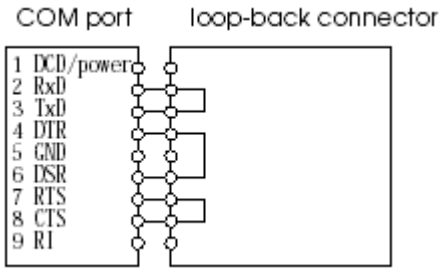
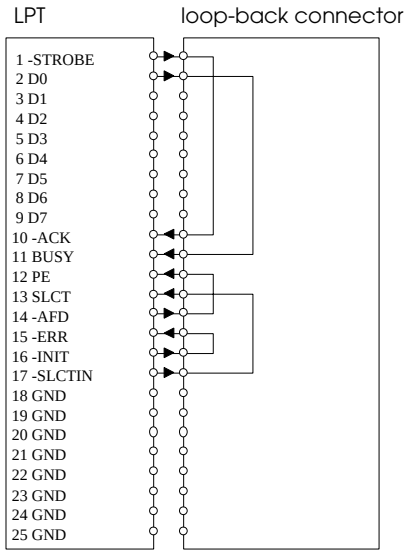
Table 6-1 Conditions (continued)

Setting	Condition
Setting of DIP switches for the customer display	When the TM printer is connected to COM1: Set the communication settings following the instructions below, when the TM printer has the ID function (ESC/POS **GS I** command). Baud rate: Same settings as for the TM printer (9600 bps) Word length: Same settings as for the TM printer (8 bits) Parity: Same settings as for the TM printer (None) Set the communication settings following the instructions below, when the TM printer does not have the ID function (ESC/POS **GS I** command). Baud rate: 9600 bps Word length: 8 bits Parity: None When the TM printer is connected to another port besides COM1: Set the communication settings of the customer display following the instructions below. Baud rate: 9600 bps Word length: 8 bits Parity: None For the setup procedure, see the instruction manual for the TM display.
Connection of the cash drawer	To check the kick-back motion of the drawer, connect the cash drawer.
Connection of the loop-back connector	To execute the loop-back test for the serial ports and LPT1, connect the loop-back connector to the port to be tested.
Setting of the serial ports and LPT port	When the settings of the serial ports and LPT1 port have been changed, return to the initial settings using the BIOS setup utility.





Startup/Exit/Initialize

Startup

Press **F10** during the POST process, and the message **Diagnostics program will execute after POST** will appear, and the device self-diagnostic utility will start after the POST process.

Exit

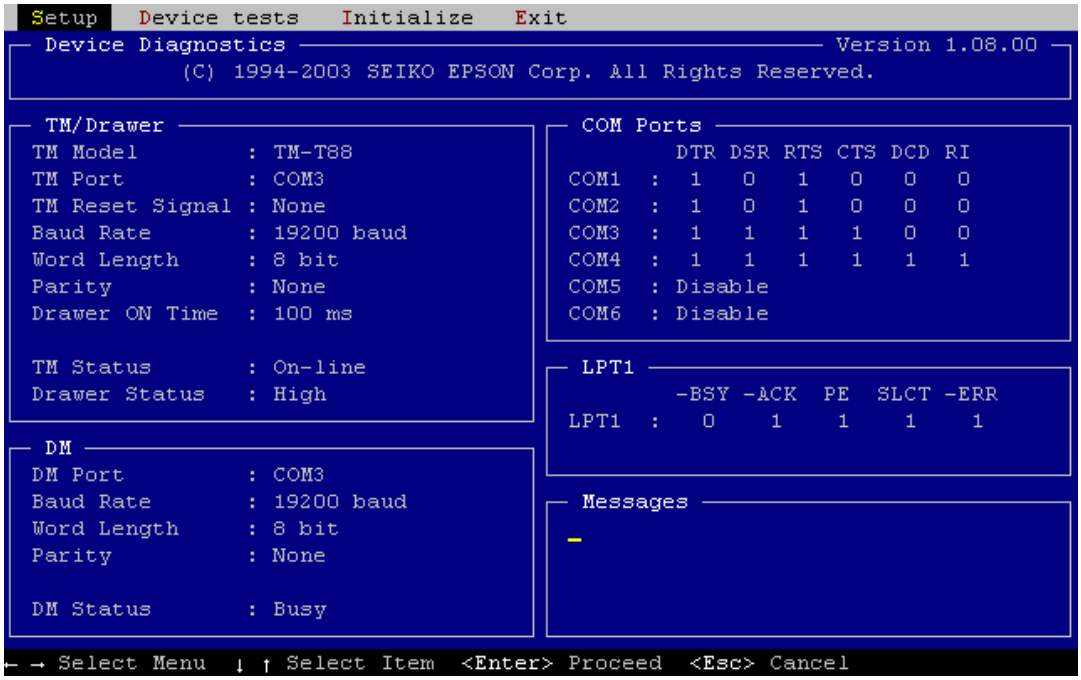
When you select **Exit** from the menu, the device diagnostics utility is closed, and the IR-320 is reset.

Initialize

When you select **Initialize** from the menu bar, the device self-diagnostic utility is initialized. If the TM status message column in the **TM/Drawer** area or the DM status message column in the **DM** area shows **No communication**, remove the cause, and select **Initialize** to initialize the program.

Screen Layout

When the device diagnostic utility starts, the following screen appears.


Setup
Device tests
Initialize
Exit
Device Diagnostics
Version 1.08.00
(C) 1994-2003 SEIKO EPSON Corp. All Rights Reserved.
TM/Drawer
TM Model : TM-T88
TM Port : COM3
TM Reset Signal : None
Baud Rate : 19200 baud
Word Length : 8 bit
Parity : None
Drawer ON Time : 100 ms
TM Status : On-line
Drawer Status : High
DM
DM Port : COM3
Baud Rate : 19200 baud
Word Length : 8 bit
Parity : None
DM Status : Busy
COM Ports
DTR DSR RTS CTS DCD RI
COM1 : 1 0 1 0 0 0
COM2 : 1 0 1 0 0 0
COM3 : 1 1 1 1 0 0
COM4 : 1 1 1 1 1 1
COM5 : Disable
COM6 : Disable
LPT1
-BSY -ACK PE SLCT -ERR
LPT1 : 0 1 1 1 1
Messages
← → Select Menu ↓ ↑ Select Item <Enter> Proceed <Esc> Cancel

The device self-diagnostic utility screen is divided into the following five areas.

- **TM/Drawer**
- **DM**
- **COM Ports**

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- **LPT1**
- **Messages**

TM/Drawer

The **TM/Drawer** area of the device diagnostics screen displays communication settings, cash drawer driving pulse signal width, and the status for the TM printer and cash drawer.

Table 6-2 TM/DM information

Setting	Description
TM model	Displays the model name, depending on the type of TM printer attached.
TM port	Displays the TM printer connection you selected when you started device diagnostics.
TM reset signal	Indicates the signal and signal definition this product is using to reset the TM printer. You see None here, because this printer does not have a reset signal.
Baud rate	Indicates the baud rate that device diagnostics is using to communicate with the TM printer and DM display.
Word length	Indicates the word length that device diagnostics is using to communicate with the TM printer.
Parity	Indicates whether device diagnostics is using parity to communicate with the TM printer.
Drawer ON time	Displays the pulse width of the signal for opening the cash drawer.
TM status	Indicates the status of the TM printer. (See Table A-11.)
Drawer status	Displays the status of the cash drawer.

Table 6-3 TM status messages

Message	Priority	Description
Disable	—	The port connected to the TM printer is disabled. Set to Enabled using BIOS setup.
No communications	—	This message is displayed when a TM printer that does not have the ID function (ESC/POS **GS I** command) is connected. Check that the TM printer's DIP switches are set to the following. Baud rate: 9600 bps Word length: 8 bits Parity: None If DIP switches are set correctly, the device self-diagnostic utility can communicate with the TM printer even though the message is displayed. If any abnormality is detected, examine the check items specified in this column. When a TM printer that has the ID function (ESC/POS **GS I** command) is connected, the device self-diagnostic utility cannot communicate with the TM printer for some reason. Check the following items. ❑ Are the interface cable and power cable connected to the TM printer correctly? Before connecting the cables, be sure to power off the IR-320. ❑ Is the printer's power switch on? ❑ Is the TM printer connected to the port selected at startup of the device self-diagnostic utility? ❑ Is the self-test for the TM printer not executed at start-up of the device self-diagnostic utility? (Do not execute the self-test.) ❑ Is the paper FEED switch not pressed at start-up of the device self-diagnostic utility? (Do not press the paper FEED switch.) If the TM printer does not meet these conditions, correct the problem, and then select the Initialize option from the menu bar. If all the above conditions are satisfied, probable causes are the following. ❑ The print head has overheated. ❑ The TM printer is not working. ❑ he TM printer interface circuit of the IR-320 does not operate normally.
Hardware error	1	The print head is overheated, or the printer is not working.
Paper feeding	2	The TM printer is feeding paper.
Receipt end	3	The receipt paper path contains no paper.
Journal end	4	The journal paper path contains no paper.
Paper near-end	5	The paper roll is out of paper or is not installed.
Receipt near-end	6	The receipt paper roll is out of paper or is not installed.
Journal near-end	7	The journal paper roll is out of paper or is not installed.
Cover open	8	The printer cover is open.
On-line	9	The printer is online. It is possible to do a TM print test.

If the device self-diagnostic utility detects more than one TM status, it will display the highest-priority message. (If, for example, TM statuses of priority 1 and 3 are detected, the message of priority 1 will be displayed.)

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DM

The **DM** area on the screen indicates the communication settings and status of the DM display.

Table 6-4 DM Information

Setting	Description
DM port	Indicates the port the device diagnostics utility is using to transmit data.
Baud rate	Indicates the baud rate that the device self-diagnostic utility is using to communicate with the customer display.
Word length	Indicates the word length that the device self-diagnostic utility is using to communicate with the customer display.
Parity	Indicates whether the device self-diagnostic utility is using parity to communicate with the customer display.
DM status	Indicates DM status. See the table below.

Table 6-5 DM status messages

Message	Description
Disable	COM port A is not set at 3F8h. Set COM port A to 3F8h in setup.
No communication	The device self-diagnostic utility cannot communicate with the customer display. Check the following items. ❑ Is the customer display connected? Before connecting the cable, be sure to power off the IR-320. ❑ Are the data communication DIP switches the same for the customer display and the TM printer? ❑ Is the power switch of the customer display turned on? ❑ Is the customer display executing the self-test? (Do not execute the self-test.) If the customer display does not meet these conditions, correct the problem, and select the Initialize option from the menu bar. If all the above conditions are satisfied, probable causes are the following. ❑ The customer display interface circuit of the IR-320 does not operate normally. ❑ The customer display does not operate normally.
Busy	The customer display is busy. Probable causes are the following. The customer display is executing the self-test. After startup of the device self-diagnostic utility, the customer display has been powered off.
Ready	The DM display is ready to receive data. The DM display test is possible.

COM port information

The area of the screen for COM ports lists the DTR, DSR, RTS, CTS, DCD, and RI status for each available COM port. When the port is disabled, a message to that effect is shown.

LPT port information

The LPT1 area of the screen lists the $\overline{\text{BSY}}$, $\overline{\text{ACK}}$, PE, SLCT, and $\overline{\text{ERR}}$ status for the LPT1 port. When the port is disabled, a message to that effect is shown.

Messages

The message portion of the screen displays the result of tests.

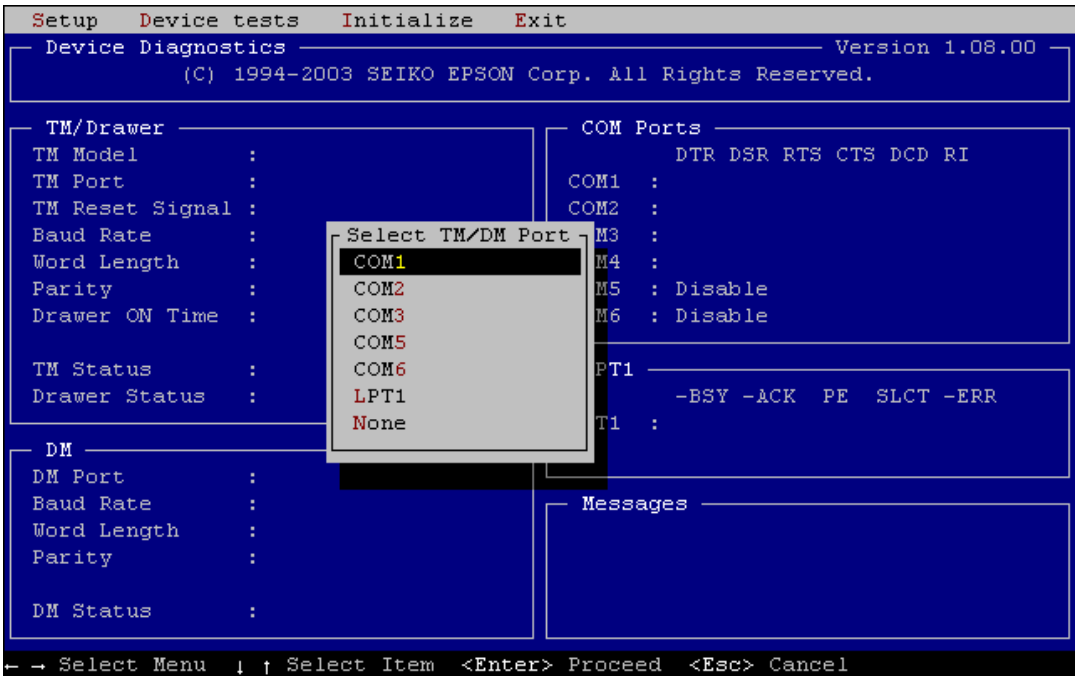
Table 6-6 Message area

Test category	Message	Description
TM printer	Disabled	This port is disabled.
	Done	The TM printer test is completed. Check the printing motion and autocutter motion.
DM display	Disabled	This port is disabled.
	Done	The DM display test is completed. Check display.
Drawer kick-out	Disabled	This port is disabled.
	Done	The drawer kick-out test is completed. Check the motion of cash drawer.
Loop-back	Error	The diagnostics test failed. This message also appears when a loop-back connector is not connected or the wrong loop-back connector is connected.
	Disabled	This port is disabled.
	OK	The test completed successfully.
LPT1 print	Time out	The printer connected to the LPT1 port did not enter a ready state after 2 sec.
	Disabled	This port is disabled.
	OK	The print data was sent successfully.

Use for the device diagnostic utility

Operating Procedure

When the device diagnostic utility starts, the following screen appears.



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With the arrow keys (←, →), select the port connected to the TM printer for testing, and press **Enter**. The device self-diagnostic utility examines items such as the TM and the DM for connection and displays the status of the devices on the screen.

The device self-diagnostic utility is capable of displaying the connection status of the options and executing the operation test. Follow these guidelines for using device diagnostics:

- ❑ To display a pull-down menu, use the left or right arrow key (←, →) to highlight the option; then press **Enter** (if necessary). You also can see the pull-down menu if you press the key for the first letter of the option. (The initialize option does not have a pull-down menu.)
- ❑ To select an option from the pull-down menu, use the up arrow or down arrow key to highlight the option; then press **Enter**. If the option has a dialog box, you see it when you press **Enter**.
- ❑ Press **Esc** to close a pull-down menu or a dialog box.
- ❑ Press **Backspace** to correct typing.

Setup Menu

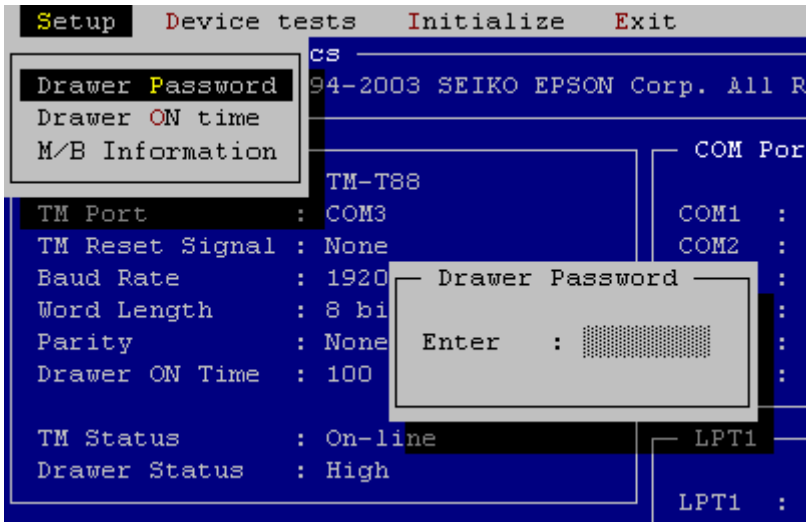
The following two commands can be executed from the setup menu.

- ❑ Drawer Password
  The password for accessing the drawer kick-out test can be set.
- ❑ Drawer ON Time
  Sets the length of time for the voltage signal supplied to the cash drawer solenoid to open it.
- ❑ M/B Information
  The device property, version of the MAC address, and keyboard firmware are confirmed.

Setting a password for the drawer kick-out test

Follow the procedures below to set a password for the drawer kick-out test.

1. Select **Drawer Password** from the pull-down menu. Enter the password.



2. Type a password, and press **Enter**. The password should be four to eight alphanumeric characters. It is case sensitive. Enter at least four alphanumeric characters.

3. The **Re-enter** message appears. Enter the password again, and press **Enter**. Then the password will be saved.

If a password is set, you will be asked to enter the password each time the drawer kick-out test is executed.

Changing/deleting the password for the drawer kick-out test

Follow the procedures below to change or delete the password for the drawer kick-out test.

1. Select **Drawer Password** from the pull-down menu. Enter the password.

2. Type the current password, and press **Enter**.

3. The message **New** appears.

4. To delete the password, only press **Enter**, and the password will be deleted. To set a new password, type the new password, and press **Enter**.

5. The message **Re-enter** appears. Type the password again, and press **Enter** to confirm the new password.

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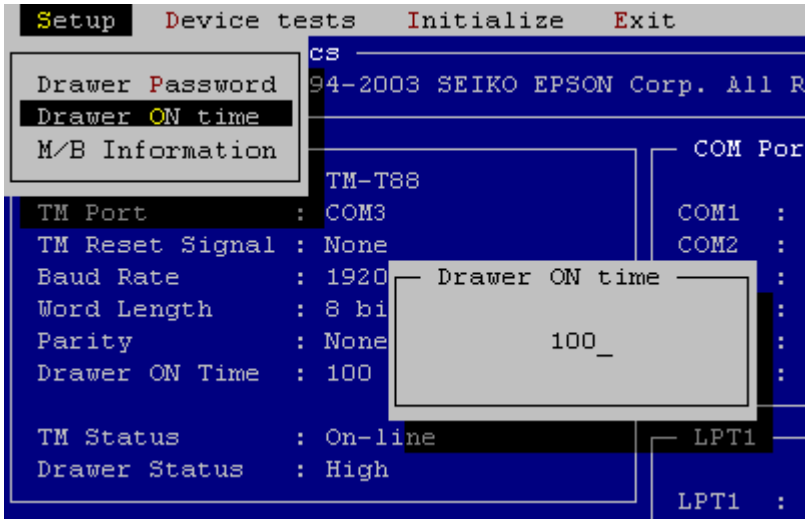
Setting drawer ON time

The drawer ON time option sets the length of time of the voltage signal necessary to open the cash drawer.

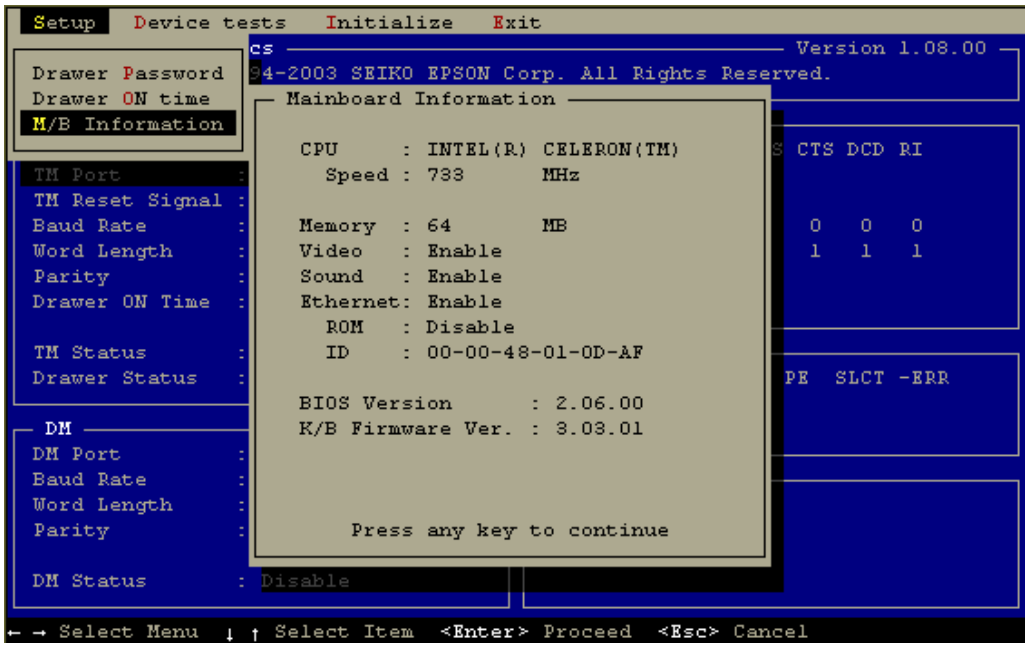


To set the time, select the **`Drawer ON Time`** option from the setup pull-down menu. The dialog box is displayed. Specify the length of time of the voltage signal in units of milliseconds that the cash drawer requires. Any value within a range of 0 to 500 ms can be set. The time that has been set here is rounded to the minimum units that can be set for the TM printer connected. The minimum unit is 10 ms for the TM-930 series and 2 ms for the other TMs.

For the appropriate value to be entered, see the instruction manual for the cash drawer.

M/B Information

The device property, configuration of the CPU and Memory, setting of the Video, Sound and Ethernet, version of the MAC address, and keyboard firmware are confirmed.



Select **`M/B Information`** from the setup pull-down menu and the dialog box appears. The information relative the mainboard can be confirmed.

- Type of the CPU and the clock speed.
- The memory capacity.
- The setup property of video Enable/Disable.
- The setup property of sound Enable/Disable.
- The setup property of Ethernet and ROM Enable/Disable. The information for Ethernet Identification.
- The BIOS version information.
- The Keyboard Firmware version information.

Device Test Menu

Each device can be tested from the **`Device Test`** menu. Executable device tests are as follows.

❑ TM print test
The following tests are executed in the TM print test.

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- Print test on receipt paper (standard print pattern)
- Autocutter test (for the autocutter equipped printer only)

When the test is completed, the message **TM print test: done** is displayed in the message area. Make sure that the print pattern has been printed. For the autocutter equipped printer, make sure that the receipt paper has been cut by the autocutter.

If the TM status is **Disable** or **No communication**, this test is not executed.

❑ DM display test
Sends the following messages to the DM display.

```
Display Module Test
**** Device Diagnostics ****
```

Check the screen of the customer display to make sure that the test has been executed. When any key is pressed, the test will terminate, and the message **DM display test: done** is displayed in the message area.

If the DM status is **Disable** or **No communication**, this test is not executed.

❑ Drawer kick-out test
The drawer kick-out test opens the cash drawer. Check to see if the cash drawer opens normally. The TM printer has two drawer kick-out drive signals (signal 1 and signal 2). This test checks the drawer kick-out drive signal 1 only.

If a password is set for the drawer kick-out test, enter the password when the drawer kick-out test is executed.

If the TM status is **Disable** or **No communication**, this test is not executed.

❑ COM1/COM2/COM5/COM6 loop-back
The transmission/reception test for the serial port is executed. Because transmission and reception are performed through a single target port, the loop-back connector needs to be connected to the target port. The COM port test checks DTR, DSR, CTS, RTS, TXD, and RXD signals.

When the test finishes normally, **OK** is displayed in the message area of the screen. When the test fails, an error message is displayed.

❑ LPT1 loop-back
The LPT1 signal lines are tested. Because transmission and reception are performed through a single target port, the loop-back connector needs to be connected to the target port. The LPT1 port test checks STROBE, ACK, DATA0, BUSY, AUTO FEED, PAPER EMPTY, ERR, INIT, SELECT IN, and SELECT signals. In the loop-back test, the data line test is not executed. Data line check must be made through the LPT1 print test.

When the test finishes normally, **OK** is displayed in the message area of the screen. When the test fails, an error message is displayed.

- ❑ LPT1 print test
  The LPT1 print test prints the standard print pattern onto the printer connected to the LPT1 port.

  When the test finishes normally, **OK** is displayed in the message area of the screen. When the test fails, an error message is displayed.

NOTE

Set the BIOS of the COM/LPT port in default.

For the COM5/6 test, set the COM1/2 to **Disable** *and set the COM5/6 to the follows.*

COM5	*F3F8*	*IRQ4*
COM6	*F2F8*	*IRQ3*

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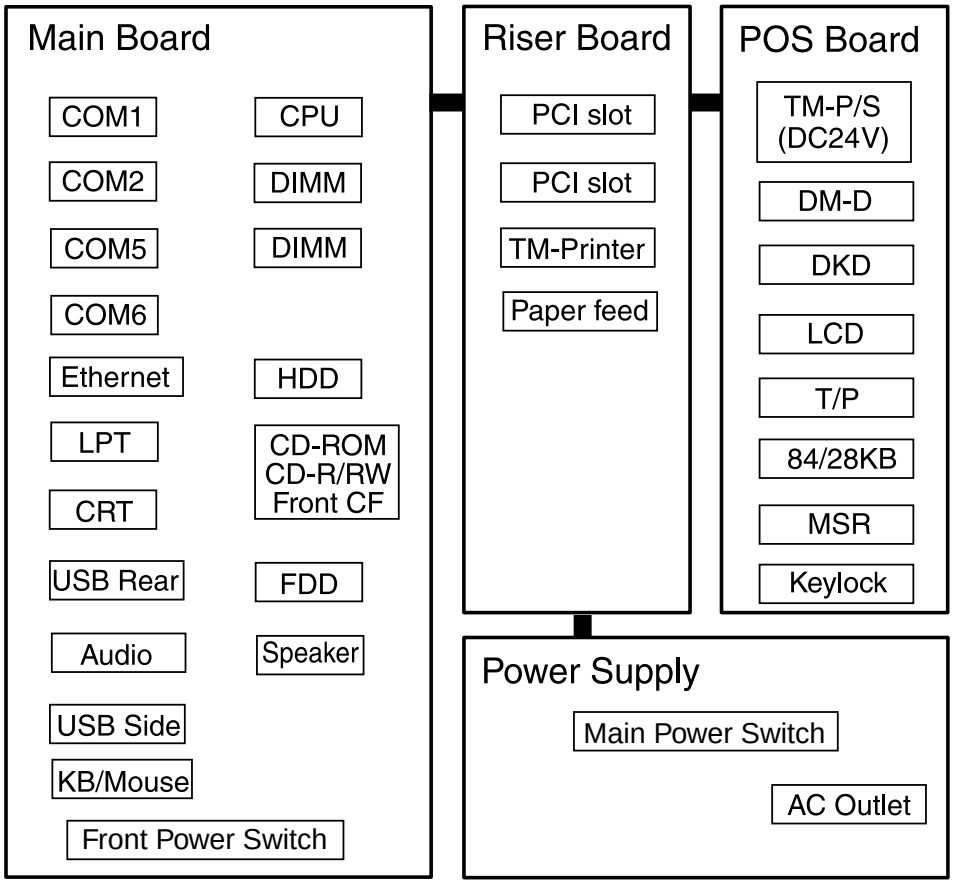
Chapter 7
Hardware Specifications

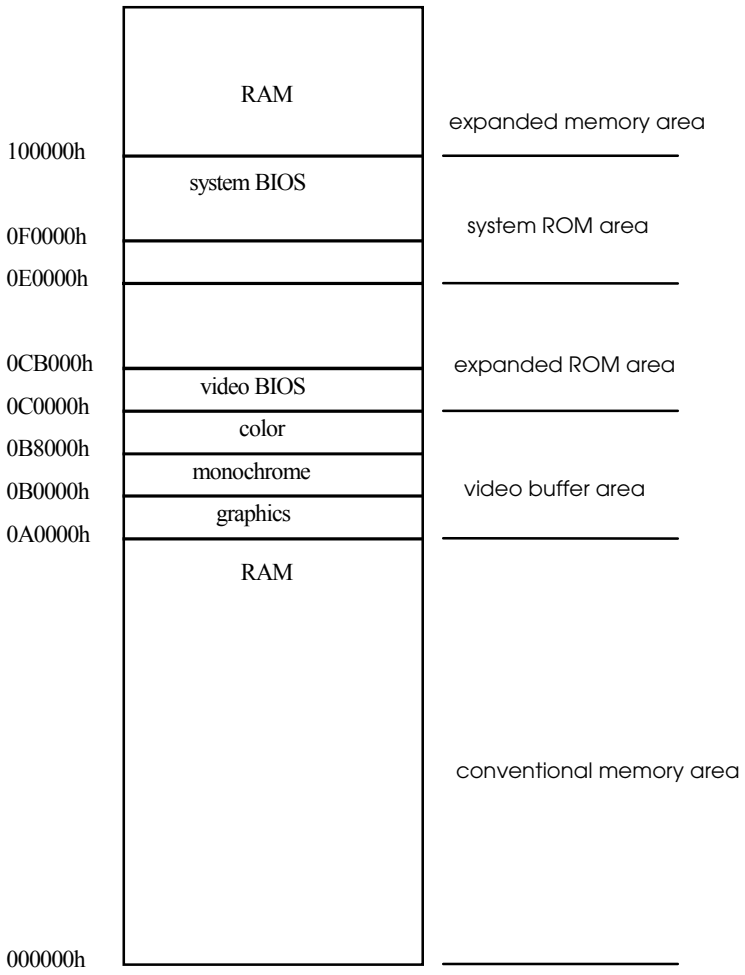
System Diagram

The IR-320 consists of three boards. The device and the interface connected to each board are as follows.



System Memory

A 512 KB flash ROM is mounted on the IR-320 as the system ROM. After the BIOS is booted, the system BIOS resides in the 64 KB area between 0F0000h and 0FFFFFh, and the video BIOS resides in the 44 KB area (40 KB for the IR-300) between 0C0000h and 0CBFFFh. The area between 0A0000h and 0FFFFFh in the system memory (main DRAM) is used for the shadow memory and system management memory (SMM). The figure below is a system memory map.



I/O Map

The system I/O map is PC/AT-compatible, and the I/O address is allocated as listed in the table below. Use either the BIOS setup program or Plug & Play function to change the serial and parallel port addresses.

I/O map

I/O address	Description	Changeable?	Device
00h to 1Fh	DMA controller (8237A)	NO	82801BA
20h to 3Fh	Interrupt controller 1 (8259A)	NO	82801BA
40h to 5Fh	Timer / counter (8254)	NO	82801BA
60h to 6Fh	Keyboard controller (8042)	NO	W83627F
70h to 7Fh	Real-time clock, NMI mask	NO	82801BA
90h to 9Fh	DMA page register	NO	82801BA
A0h to BFh	Interrupt controller 2 (8259A)	NO	82801BA
B2h to B3h	Advanced Power Management control	NO	82801BA
C0h to DFh	DMA controller 2 (8237A)	NO	82801BA
F0h	Coprocessor error	NO	82801BA
170h to 177h	Hard disk controller (secondary)	NO	82801BA
1F0h to 1F7h	Hard disk controller (primary)	NO	82801BA
220h to 22Fh / 240h to 24Fh	Sound Blaster	YES	82801BA
2E8h to 2Efh	Serial port 4	YES	W83627F
2F8h to 2FFh	Serial port 2	YES	W83627F
376h	Hard disk controller (secondary)	NO	82801BA
378h to 37Fh	Parallel port 1 (+400h can be used when in the ECP mode)	YES	W83627F
388h to 38Bh	FM synthesizer (when a sound board is mounted)	NO	82801BA
3B0h to 3DFh	VGA register	NO	82810E2
3E8h to 3EFh	Serial port 3	YES	W83627F
3F0h to 3F7h	Floppy disk controller (excluding 3F6h)	NO	W83627F
3F6h	Hard disk controller (primary)	NO	82801BA
3F8h to 3FFh	Serial port 1	YES	W83627F
4D0h to 4D1h	Interruption edge / level control	NO	82801BA
CF8h to CFFh	PCI configuration register (DWORD)	NO	82810E2
CF9h	Reset control (byte)	NO	82801BA
4000-4037h	Power Management I/O Register	NO	82801BA
5000-5000Ch	SMBUS I/O register	NO	82801BA

DMA

The IR-320 connects two 8237A-equivalent DMA controllers to support seven DMA channels. Channels 0, 1, 2, and 3 provide 8-bit data transfers; channels 5, 6, and 7 provide 16-bit data transfers. The IR-320 uses channel 2 for the floppy disk drive controller and releases the other channels to the ISA bus. The following table lists the DMA channel allocation.

DMA channels

Controller	Channel	Application
DMA1 8 bits	0	(Spare)
	1	(Spare*)
	2	Floppy disk drive controller
	3	(Spare*)
DMA2 16 bits	4	Controller 1 cascade
	5	(Spare)
	6	(Spare)
	7	(Spare)

* When LPT1 is in ECP mode, use one of these channels.

System Interrupts

The system connects 2 8259A-equivalent interrupt controllers in cascade and has 15 levels of interrupts, besides NMIs. The following table shows the application for each interrupt. Change the system interrupts with the BIOS setup program or Plug & Play function.

System interrupts

Controller 1	Controller 2	Application	Changeable?
IRQ0		Timer	NO
IRQ1		Keyboard	NO
IRQ2		Controller 2 cascade	NO
	IRQ8	RTC	NO
	IRQ9	ACPI	NO
	IRQ10	Serial port 4	OK
	IRQ11	Serial port 3	OK
	IRQ12	Mouse	OK
	IRQ13	Numerical operation coprocessor	NO
	IRQ14	Hard disk controller (primary)	*2
	IRQ15	Hard disk controller (secondary)	*2
IRQ3		Serial port 2	OK
IRQ4		Serial port 1	OK
IRQ5		Not used *1	OK
IRQ6		Floppy disk controller	NO *3
IRQ7		Parallel port 1	OK
NMI		I/O error check	NO

*1 PCI (for example, network) is automatically set through the detection of the unused interrupt level.
*2 Changes are not possible when the device is in use, but can be cleared when not in use.
*3 This can be set to "Not used" in the BIOS setup, but the IRQ is not released.

Hardware Specifications

CPU (Celeron-PPGA)

An Intel Celeron™ processor is used as the CPU.

	Frequency	Package	L2 cache	System Bus
CPU	1.2GHz	FCPGA2	256KB	100MHz
	733MHz	FCPGA	128KB	66MHz

Memory (168-pin DIMM)

Two 168-pin DIMM sockets are available, and a maximum of 512 MB of memory can be mounted. The DRAM supports only the 3.3 V SDRAM (synchronous DRAM.) A single DIMM can be used. It also is possible to use DIMMs of two differing capacities. DIMMs must conform to the Intel PC SDRAM unbuffered DIMM specifications.

SDRAM specifications Conform to the Intel PC SDRAM Specifications Applicable to PC100

The DIMM of the PC133 can be used but it works at 100MHz.

Video Controller

The video controller in the chipset (Intel 810E2)

The video memory uses the part of the main memory, and the color count settings shown below are possible for each resolution.

Display devices and colors that can be set

	Display device		
Resolution (dots)	**DM-LR104T**	**DM-LR121SV/121SL**	**CRT**
640 × 480	—	—	16,770,000 colors
800 × 600	16,770,000 colors	16,770,000 colors	16,770,000 colors
1024 × 768	—	—	65,000 colors

Notes: 1. The table above shows the number of colors that can be set. The number of colors that can be actually displayed is limited to the number of display colors for each LCD unit.
2. 16,770,000 colors = 16 M colors = 24-bit; 65,000 colors = 64 K colors = 16-bit.

Note:
The number of colors that the TFT-type LCD unit can actually display for expression is 256.

IDE Devices

It is possible to mount up to two 2.5-in. HDDs as primary IDE devices and a CD-ROM drive , CD-R/RW drive and a CompactFlash disk as secondary IDE devices.

Note:
HDD Life: 5 years or when the total amount of use exceeds 20,000 hours. (Condition: The HDD's motor stops for 10 minutes or more every 24 hours(for 2.5" HDD)).

Serial Device

The IR-320 has four serial ports (COM1, COM2, COM5, COM6). Also, +5V or +12V can be output at the 1st pin by the Jumper setting of the main board. The serial ports COM3 and COM4 are internally used for the dedicated TM printer unit/customer display (COM3) and the touch panel (COM4). Also, the system can be started up by the ring signal from the 9st pin.

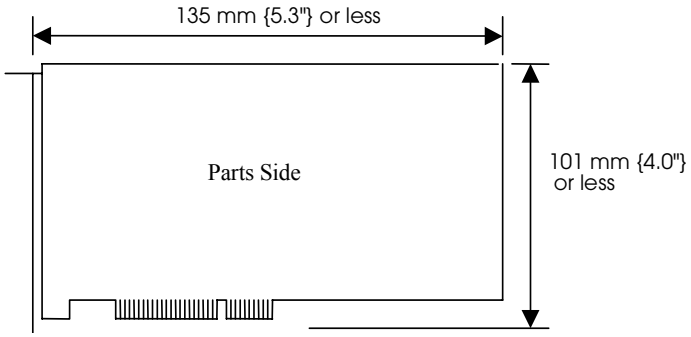
To use the serial ports COM5 and COM6, it is necessary to set other unused devices (for example, parallel) to disabled (not used) using the BIOS setup and then allocate interrupts for the serial ports COM5 and COM6.

PCI Slots

The PCI of the IR-320 has the following features:

- ❑ +3.3 V power supply
- ❑ Mountable PCI card size

The PCI cards within the dimensional range as shown in the following figure can be mounted.



Three-terminal regulators for the drawer

As with the IR-320, the drawer can be used via the dedicated TM printer unit only when the dedicated TM printer unit is connected. A three-terminal regulator for regulating the electric current is mounted on the riser board.

Ethernet Controller

The Ethernet controller is built in the Chipset (Intel 82801BA). This enables operation at 10 Mbps and 100 Mbps and wakeup from the LAN.

When the main power switch is on (when AC power is supplied), wakeup from the power off state is enabled. To enable the wakeup, `Wake-Up by PCI card` should be set enabled in the BIOS setup.

The operating status of LAN can be confirmed by the LED of the Ethernet connector.

The MAC address specific to each controller is described on the seal attached to the main board (remove the side panel which is on the left side of the unit). For Windows NT/2000/XP, the MAC address can be obtained by using the following command:

```
ipconfig/all
```

⚠ CAUTION:

If connection is made directly from an outdoor, overhead LAN cable, the connected equipment may be damaged by lightning. When connecting to such a cable, the connection should be routed through a device to counter the surge; otherwise, do not use the connection.

Power Supply Unit

Input Specification

Input voltage:	100 to 240 V AC (± 10%)
Frequency (rating):	50/60 Hz (± 3 Hz)
Input current:	6.0 A (100 V) to 4.0 A (240 V) (except the power for AC outlet).
Outlet current	3A(rating) The output of the AC outlet is interlocking with the power on/off control in the system.

Protection Circuit/Unit

When the protection circuit is activated, it automatically shuts off the power. If recovery is possible, turn off the main power switch, wait for more than 2 minutes, and then turn on the main power switch.

- ❏ Short-circuit protection:
  Shuts down the system when the output terminal (output power supply) is short-circuited. Recovery is possible.

- ❏ Over-voltage protection:
  Protection circuit to prevent the output terminals from exceeding the rated voltage. Recovery is possible.

- ❏ Overheating protection:
  Shuts down the system when excessive heat is detected in some element within the power supply unit. Recovery is possible.

- ❏ Input power fuse:
  Shuts down the system when the input current exceeds the specified value. Trouble within the power supply unit is possible. If the fuse has blown, the whole power supply unit should be replaced. Recovery is impossible.

- ❑ AC output Fuse
  If the fuse has blown, remove and exchange the fuse in the fuse holder on the back of the power supply.

- ❑ Electrical Capacity to External Devices

The total power capacities available to the devices that receive power supply from the board inserted into the PCI slot; the serial ports COM1, COM2, COM5, and COM6; the keyboard/ mouse; and the USB port are shown below. Be sure the current consumptions do not exceed the total power capacities listed below as to the voltages 5 V, +3.3 V, +12 V, –12 V, and +24 V (in the same way as with the IR-320 but for +3.3 V).

External electrical capacity

Power supply	Application	Total capacity
+5 V DC	PCI slot, COM ports, keyboard, USB	3.0 A
+3.3 V DC	PCI slot	1.0 A
+12 V DC	PCI slot, COM ports	1.5 A
–12 V DC	PCI slot	0.3 A
+24 V DC	Dedicated printer, external TM power supply, drawer, customer display	2.0 A

Each of these ports is restricted to the capacity limits shown below.

Electrical capacity of each port

Port	Power supply	Supply capacity	Remarks
COM ports	+5 V DC	500 mA each (peak at 1 A/100 ms)	The total for all four ports must not exceed the value shown on the left.
	+12 V DC	500 mA each (peak at 1 A/100 ms)	
USB port	+5 V DC	500 mA each (peak at 1 A/100 ms)	—
Keyboard	+5 V DC	500 mA each (peak at 1 A/100 ms)	—
Drawer	+24 V DC	1 A	—

⚠ CAUTION:

The USB port is not supported by Windows NT.

Lithium Battery

The IR-320 is internally equipped with a non-rechargeable Lithium Battery. This battery is used for backing up the RTC and the CMOS RAM built in the RTC. This is different from the IR-310.

Battery type	CR-2032
Backup time	5 years

If the message "`"" cmos check sum error""`" appears every time the system is started up, replace the battery.

⚠ WARNING:

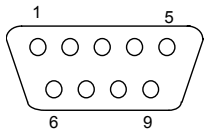
Be sure to use the IR-320 within the specified standard temperature range; in particular, do not use the IR-320 at high temperatures and high humidity, and never operate it where dew may condense on it.

The battery contains flammable substances, such as lithium and an organic solvent. Do not short-circuit, disassemble, deform, heat, or throw the battery into a fire. The fire may cause the battery to generate heat, burst, and ignite.

Interface

Serial Connectors

The IR-320 has four NS16550-compatible serial ports (COM1, COM2, COM5, COM6). It has four outside connectors, however, COM5 and COM6 cannot be used by default. Assign COM5 and COM6 to interrupts not in use.



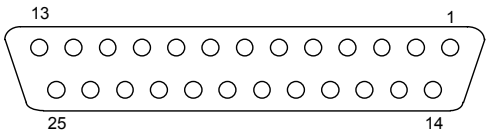
Assignment of serial connector signals

No.	Signal name	I/O	Description
1	DCD/power supply (*)	I/—	Carrier detection signal or power supply output
2	RXD	I	Received data signal
3	TXD	O	Transmission data signal
4	DTR	O	Terminal ready signal
5	GND	—	Ground
6	DSR	I	Data set ready signal
7	RTS	O	Transmission request signal
8	CTS	I	Transmission data cleared signal
9	RI	I	Ring signal

(*) Pin 1 can be set for +5 V output and +12 V output with the jumper settings (JP7 to JP18) on the main board.

Parallel Connector (LPT Connector)

The LPT connector is a 25-pin D-Sub female connector. Set the LPT port to bidirectional or EPP/ ECP mode in BIOS setup. The IR-320 does not support an OCIA interface.



Assignment of parallel connector signals

No.	Signal name	I/O	Description
1	STROBE#	O	Strobe signal
2	PD0	I/O	Data signals
3	PD1	I/O	
4	PD2	I/O	
5	PD3	I/O	
6	PD4	I/O	
7	PD5	I/O	
8	PD6	I/O	
9	PD7	I/O	
10	ACK#	I	Acknowledge (receiving complete) signal. LOW: Receiving enabled
11	BUSY#	I	Busy signal. LOW: Busy
12	PE	I	Paper error signal. HIGH: Error
13	SLCT	I	Selection signal. HIGH: select
14	ATFD#	O	Auto-feed signal. LOW: Paper feed
15	ERR#	I	Error signal. LOW: Error
16	INIT#	O	Initialization signal. LOW: initialize
17	SLIN#	O	Printer selection signal. HIGH: Select
18 to 25	GND	—	Ground

following a signal name indicates active LOW.
See the IEEE 1284 Specification for data signals in the EPP and ECP modes.

External TM Power Connector

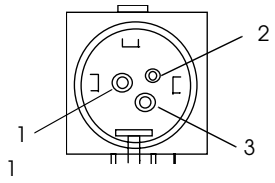
The power connector for the TM printer is located on the rear panel. Connect the power cable for the TM printer to the external TM power connector. This connector is a Hoshiden-made TCS7960-53. Use the dedicated power cable for the external TM power connector.

- Ratings: 24 V -3%, +7% 2 A (The current capacity includes the currents used in the DKD connector and the customer display connector.)

Note:
When an exclusive printer unit is connected, the external TM power connector cannot be used.

Usable printers

Printer tray mounted type	TM-U200 series TM-H6000 series TM-T88II series
External type	TM-U675 series TM-T285 series TM-H5000 series

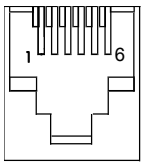


Assignment of TM connector signals

No.	I/O	Signal Name
1	—	24 VDC
2	—	GND
3	—	NC

DKD Connector

The DKD connector, which is located on the rear panel, is a connector for the cash drawer. The connector is a 6-pin, modular connector.



DKD connector pin assignments

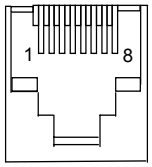
No.	Signal name	I/O	Description
1	FG	—	Frame ground
2	DKD1	O	Drawer 1 kick-out signal; LOW: Open
3	DK Status	I	Drawer status signal; Low/High is different with the specification of the Drawer.

DKD connector pin assignments

4	+24 V	—	+24 V (DC) of electrical power
5	DKD2	O	Drawer 2 kick-out signal; LOW: Open
6	SG	—	Signal ground

Customer Display Connector

Connect a DM-D series customer display to the customer display connector. The connector is an 8-pin modular connector.



DM-D connector pin assignments

No.	Signal name	I/O	Description
1	FG (frame GND)	—	Frame ground
2	RXD (not used)	I	Received data (not used with this unit)
3	TXD	O	Transmission data
4	DTR (not used)	O	Unit ready signal (always at ready)
5	DSR/CTS	I	Customer display ready signal
6	SG (signal GND)	—	Signal ground
7	+24 V DC	—	+24 V of electrical power
8	PGND (power GND)	—	Power supply ground

Appendix A
Wake On LAN

Overview

Objective of Wake On LAN

With the Wake On LAN function, one machine connected to the LAN can be powered on from another machine also connected to that LAN through the network.

This makes it possible for the server to manage the power of all machines without the operator having to operate the soft power switches.

Settings for Using Wake On LAN

The conditions and settings for using the Wake On LAN in the IR-320 are given below.

- ❑ AC power is being supplied (Main power switch is on).
- ❑ **Onboard LAN Device** and **Wake-Up by PCI** is enabled in the BIOS setup.
- ❑ The Wake On LAN application is installed in the server.

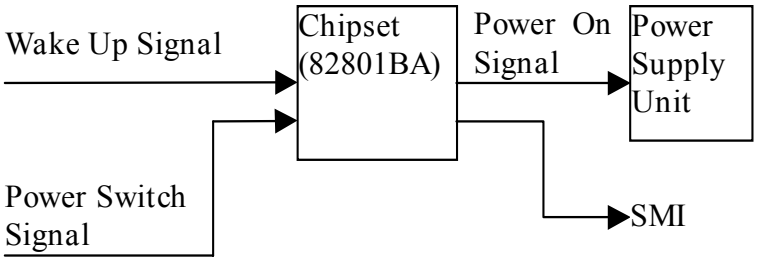
In the IR-320, Wake On LAN is supported only for the onboard LAN controller. The function cannot be used with a general-purpose NIC via a PCI card interface.

Wake On LAN Methods

Wake On LAN can power on the IR-320 in the following two ways:

- ❑ Magic Packet received

Basic Operation



Signal Paths in Wake On LAN

If the Chipset (82801BA) receives a Wake Up Signal from LAN or the Soft Power Switch is pressed, it outputs a power-on signal to the power supply (if the poweris off) or an LMI signal (if the machine is in the suspend state) to resume.

Because the wake-up signal is received by the chipset, backup is always active as long as AC power is supplied.

Software Settings

BIOS Settings

The following settings must be made in BIOS setup to enable Wake On LAN.

`Wake-Up by PCI` in **`Power Management Setup`**

`Disable`: Wake On LAN disabled
`Enable`: Wake On LAN enabled

When this is set to **`Enable`**, a wake-up by Wake On LAN is possible. This is specifies whether or not the chipset, shown in the figure above, recognizes the Wake On LAN signal.

Precautions

1. When a system using Wake On LAN is shut down by the OS or shut off normally by the soft power switch, the function is enabled. If the soft power switch is pressed and held down for 4 seconds, or if the OS does not finish normally, the function is disabled.

   At power off, BIOS sets the chipset for this item to off, which means the function is always disabled when power is turned back on. If the front switch is depressed for 4 seconds, the machine powers off without going through BIOS, and the function will be disabled regardless of the BIOS setting.

2. If the OI-R03 battery unit is not installed, Wake On LAN is not enabled immediately after AC power is turned on, even though the BIOS has been set. On the other hand, if the OI-R03 battery unit is installed, immediately after AC power is turned on, chipset settings are initialized and, therefore, do not reflect BIOS settings. As a result, Wake On LAN always must be set to on by hardware, regardless of the BIOS setting, between AC power on and the first Wake On LAN.

Wake On LAN Method Details

Magic Packet Received

In the Magic Packet mode, when the LAN controller detects a data pattern consisting of 6 FF bytes and 16 repetitions of the media access control (MAC) address, it issues a wake-up request. This special pattern cannot occur in normal communications and must be sent deliberately. Magic Packet data for a client with a MAC address of "11-22-33-44-55-66," for example, is as indicated below (for example, data excluding the destination address, self address, CRC):

FF FF FF FF FF FF 11 22 33 44 55 66 (1) 11 22 33 44 55 66 (2) 11 22 33 44 55 66 (3) 11 22 33 44 55 66 (4)

11 22 33 44 55 66 (5) 11 22 33 44 55 66 (6) 11 22 33 44 55 66 (7) 11 22 33 44 55 66 (8) 11 22 33 44 55 66 (9)

11 22 33 44 55 66 (10) 11 22 33 44 55 66 (11) 11 22 33 44 55 66 (12) 11 22 33 44 55 66 (13) 11 22 33 44 55 66 (14)

11 22 33 44 55 66 (15) 11 22 33 44 55 66 (16)

Reference Information

MAC Address

Check the machine's MAC address using the following methods:

- Windows 98:

  Type winipcfg in the command line, and press **Enter**.

- Windows NT/2000/XP:

  Type ipconfig/all in the command line, and press **Enter**.

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Appendix B
The IR-310 Compared to the IR-320

It is possible to use the IR-320 as the successor model to the IR-310, but there are several differences; they are listed in this appendix. For more details, ask your dealer.

Hardware

Here is a comparison of the hardware.

Item		IR-310	IR-320
CPU	CPU	Celeron™ (PPGA/FCPGA)366Hz to 733 MHz Pentium III (FCPGA) 700MHz	Celeron™ (FCPGA2) 1.2 GHz Celeron™ (FCPGA) 733 MHz
	Socket	370pin Socket	←
	Secondary cache Memory	Pentium III™ (FCPGA) : 256KB Celeron™ (FCPGA) : 128KB	Celeron™ (FCPGA2) 1.2GHz : 256KB Celeron™ (FCPGA): 128KB
Memory	Main Memory	168pin DIMM slot x2 3.3V SDRAM	←
		256MB max PC66	512MB max PC100
	System ROM	256KB	512KB
Chipset		Intel440BX	Intel 810E2
VideoController		CHIPS 69000	Included in the Chipset
Video Memory		2MB	Part of the main memory is used
Ethernet		10 BASE-T / 100 BASE-TX standard installation Wake Up on LAN available	10 BASE-T / 100 BASE-TX Wake On LAN and PXE(RPL) available
		Installed on the POS board	Installed on the main board
Sound		Option	Standard
	Interface	No	External line input/output, mike input
	Speaker	A built-in mono speaker (with a hardware volume) A music CD cannot be played with the speaker	←
Supplement memory device	FDD	3.5-inch (1-unit)(1.44MB/720KB)	←
	HDD	3.5-inch (1-unit) or 2.5-inch (2-unit) installed IDE interface	←
		5 GB - 20 GB	20 GB or more
		For IDE/ UltraDMA 33	For IDE/ UltraDMA 33/66/100
	CD-ROM drive CD-R/RW drive	Installation possible as an option IDE interface、boot possible	←
	NV-RAM (option)	Available	Not available

Item		IR-310	IR-320
CompactFlash	Front CompactFlash Adapter	Installation possible instead of the CD-ROM	←
	Built-in	Available	Not available
Interface	Network	Installed on the x1 POS board	Installed on the x1 main board
	Keyboard/mouse	x1 PS/2 compatible (6-pin miniDIN)	←
	Serial	x4 (D-sub 9-pin male) +5V or +12V can be output to No. 1 pin by setting jumpers	←
	Parallel	x1 (D-sub 25-pin female) EPP/ ECP compatible	←
	Display	x1 (D-sub 15-pin female)	←
	USB	x2 (Revision 1.1)	←
	Customer display	x1	Installed on the x1 POS board
	Drawer	x1 (2-drive)	←
	External printer power supply	Installed on the x1 (24V) POS board	←
	Sound input/output	Not available	Eternal line input/output, mike input
Extension slot	PCI slot	x2 (+3.3V is available.) Rev. 2.1	x2 (+3.3V is available.) Rev. 2.2
Power Supply	Specification	100-240V 50-60Hz 180W	←
	Output specification	+5V +3.3V +12V -12V +24V	
	AC Outlet	Two types: not available/ available (3A)	Available (3A)
	AC outlet protection	Breaker or fuse	Fuse
Backup battery for RTC	Charge	Charging at system on	Charging prohibited
	Type	-	CR-2032
	Data storing time	40 days (with NV-RAM) 200 days (without NV-RAM)	5 years
Battery pack	NiCd battery for data storing at AC power supply cut	Available (option)	←
Other	Key lock	7 positions	←
	Front lock	Available	←
Dimension		252x386x261	←
Mass		6.7kg	←
Case color		EPSON cool white	←

Hardware Configuration

Item	IR-310	IR-320	Compatible
Main board	Available	Available	No
POS board	Available	Available	No
Riser board	Available	Available	No
LVDS board	Available	Not available	No
Power suply (with AC outlet and fuse)	Available	Available	Yes

Jumper and Switch Settings

Item		IR-310	IR-320
Main Board	RTC and CMOS clear	JP5	←
	COM Port power output	JP7 to JP18	←
	TM reset polarity settings	JP31	←
	TM/customer display flow control	JP32	←
POS 320/ LVDS Board	TM reset enable/ disable setting for RTS and DTR	JP3	←
	DIP switch settings for keyboard controller	DSW1 SW1: Start-up mode SW2 to 4: Country settings Default setting: OFF, OFF, OFF = US mode	DSW1 SW4: Start-up mode SW1 to 3: Country settings Default setting: OFF, OFF, OFF = US mode
	Ethernet setting	JP1	None:
Upper Surface	LCD setting	Jumper JP1 1-2: DM-LR104T-252,DM-LR104SV, DM-LR121SV/XG 2-3: DM-LR104T-052, DM-LR104	Jumper Switch JP1 1-2: DM-LR104T-252,DM-LR121SV 2-3: DM-LR104T-052
Rear Sueface	Customer display loop-back setting	Jumper of over the power supply fan	Switch (SW2) of the POS 320 board rear panel

Option Comparison

Here is a comparison of the options.

Item		IR-310	IR-320
LCD unit	DM-LR104	Can be used	Cannot be used
	DM-LR104SV	Can be used	Cannot be used
	DM-LR104T	Can be used	←
	DM-LR121SV	Can be used	←
	DM-LR121SL	Cannot be used	Can be used
Keyboard	DM-KR028	Can be used	←
	DM-KR084	Can be used	←
MSR unit	DM-MR112 (for Japan)	Can be used	←
	DM-MR123 (for countries except Japan)	Can be used	←
Customer display	DM-D110	Can be used	←
	DM-D102-x15	Can be used	Cannot be used
	DM-D210	Can be used	←
	DM-D500	Can be used	←
Twin pole	OI-R08	Can be used	←
Exclusive TM printer	TM-T88IIR	Can be used	←
	TM-U210AR	Can be used	←
	TM-H3000R	Can be used	←
Printer tray	OI-R01-001	Can be used	←
	OI-R01-022	Can be used	←
Solid disc	OI-M04	Cannot be used	←
PCMCIA board	OI-B06	Cannot be used	←
NV-RAM	OI-M06	Can be used	Cannot be used
Sound board	OI-B07	Can be used	Cannot be used
CD-ROM drive	OI-R06-002	Can be used	←
CD-R/RW drive	OI-R06-052	Can be used	←
Front CompactFlash Adapter	OI-R07	Can be used	←
Battery pack	OI-R03	Can be used	←

Software Comparison

Here is a comparison of the software.

Item		IR-310	IR-320
OS	Windows XP Professional Edition pre-installed	Not available	←
	Windows XP Professional Edition commercially sold	Can be used	←
	Windows 2000 Professionall pre-installed	Available	←
	Windows 2000 Professionall commercially sold	Can be used	←
	Windows NT Workstation 4.0 pre-installed	Available	←
	Windows NT Workstation 4.0 commercially sold	Can be used	←
	Windows 98 Second Edition pre-installed	Available	←
	Windows 98 Second Edition commercially sold	Can be used	←
	Windows 95 pre-installed	Available	Not available
	Windows 95 commercially sold	Can be used	Cannot be used
	DOS pre-installed	Available	Not available
	DOS commercially sold	Can be used	Can be used
BIOS		APM 1.2/Plug&Play/DMI compatible/Diag	ACPI 1.0b/APM 1.2 / Plug&Play / DMI compatible/Diag
POS keyboard firm		Exclusive keyboard unit, MSR unit, Keylock control firmware	←
Other	OPOS English version	1.62 ~ 1.95	2.20 SP7 or later
	OPOS Japanese version	1.62 ~ 1.92	2.20J SP7 or later

Comparison for Driver, Tool, and Utility

Here is a comparison of the drivers, tools, and utilities. Compatibility indicates API (Application Program Interface) compatibility. If API compatibility is Yes, applications written for the IR-310 should also work with the IR-320. However, be sure that you test any application written for the IR-310 to confirm that it can also be used for the IR-320 before installing it.

OS	Driver/Tool/Utility	IR-310	IR-320	Change	API Compatibility	Remarks
All	BIOS power management	APM	APM/ACPI	Changed	-	
	Keyboard firmware related tools for DOS	EPSON	EPSON	Not changed	Yes	
	Keyboard firmware related tools for Windows	EPSON	EPSON	Not changed	Yes	
	Layer compatible 28-keyboard unit related tools	EPSON	EPSON	Not changed	Yes	
DOS	CDROM Driver	EPSON	EPSON	Not changed	Yes	
	Network Driver	Realtek	Intel	Changed	Yes	
	Touch Panel Driver	Fujitsu	Fujitsu	Not changed	Yes	
Win98SE	Chipset Driver	-	Intel	New	Yes	
	Power Switch Disable tool	-	EPSON	New	Yes	Supported by BIOS (IR-310)
	AC Line watching tool	-	EPSON	New	Yes	Supported by BIOS and Windows API (IR-310)
	Logon tool	EPSON	EPSON	Not changed	Yes	
	NVRAM utility	EPSON	-	Deleted	No	Not supported by IR-320
	Network Driver	Realtek	Intel	Changed	Yes	
	Sound Driver	Ess	Analog Devices	Changed	Yes	
	Touch Panel Driver	EPSON	EPSON	Changed	Yes	Frequency of the beep sound is changed
		Fujitsu	-	Deleted	No	Not supported by IR-320
	Video Driver	Chips	Intel	Changed	Yes	

OS	Driver/Tool/Utility	IR-310	IR-320	Change	API Compatibility	Remarks
Win NT	Logon tool	EPSON	EPSON	Not changed	Yes	
	NVRAM utility	EPSON	-	Deleted	No	Not supported by IR-320
	APM Driver	EPSON	EPSON	Not changed	Yes	
	Network Driver	Realtek	Intel	Changed	Yes	
	Sound Driver	Ess	Analog Devices	Changed	Yes	
	Touch Panel Driver	EPSON	EPSON	Not changed	Yes	
		Fujitsu		Deleted	No	Not supported by IR-320
	Video Driver	Chips	Intel	Changed	Yes	
	Screen saver	EPSON	-	Deleted	No	Not supported by IR-320
Win 2000	Chipset Driver	-	Intel	New	Yes	
	Power Switch Disable tool	-	EPSON	New	Yes	Supported by BIOS (IR-310)
	AC Line watching tool	-	EPSON	New	No	Not supported by IR-310
	Serial driver	Microsoft	EPSON	Changed	Yes	For IM-320, reload of the standby timer is supported
	Logon tool	EPSON	EPSON	Not changed	Yes	
	NVRAM utility	EPSON	-	Deleted	No	Not supported by IR-320
	Network Driver	Realtek	Intel	Changed	Yes	
	Sound Driver	Ess	Analog Devices	Changed	Yes	
	Touch Panel Driver	EPSON	EPSON	Changed	Yes	Support with ACPI mode is added
		Fujitsu		Deleted	No	Not supported by IR-320
	Video Driver	Chips	Intel	Changed	Yes	
Win XP	Chipset Driver	-	Intel	New	Yes	
	AC Line monitoring tool	-	EPSON	New	No	Not supported by IR-320
	Network Driver	Realtek	Intel	Changed	Yes	
	Touch Panel Driver	EPSON	EPSON	Changed	Yes	Support with ACPI mode is added
	Video Driver	Chips	Intel	Changed	Yes	

Appendix C
Serial Handshaking

Overview of the TM Printer and the Customer Display Connections

The recommended control line connections for the TM Printer and its peripherals are the default settings. These are DTR/DSR flow control for the TM printer and RTS/CTS flow control for the Customer Display.

Possible Combinations of Handshaking for the TM Printers and the Customer Displays

When a TM-T88IIR, TM-U210AR, or TM-H3000R printer is installed on the IR-320, the DTR/DSR line is internally connected to the TM Printer. As a result of this, customers should use RTS/CTS line for handshaking with the Customer Display. However, if the customers change a setting of JP32, they can use the following flow control combination.

TM Printer control: RTS/CTS

CustomerDisplay control: DTR/DSR

Connection Differences for Customer Displays

Unlike the TM printers that use a pass-through connection with the Customer Display, the printers and displays for the IR-320 system have separate connections for separate flow control. (External TM printers also require separate flow control if a Y connection is selected rather than a pass-through connection.)

Flow Control Selections for Different Applications

If an application program is written in Visual Basic and MSCOMM is used, only RTS/CTS and XON/XOFF are available for selection. In this case, you can set the TM Printer and the Customer Display as follows using the ActiveX control MSCOMM:

TM Printer control: XON/XOFF

CustomerDisplay control: RTS/CTS

Notes:
CustomerDisplay control cannot be guaranteed with XON/XOFF.
DTR/DSR handshaking is not an option with the MSCOMM control.

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If an application program is written in Visual C or some other language that uses the WIN API directly, you can set the flow control settings in either of the following ways:

When JP32 on the POS board is SHORTED

TM Printer control: Either DTR/DSR or XON/XOFF

CustomerDisplay control: RTS/CTS

Note: CustomerDisplay control cannot be guaranteed with XON/XOFF.

When JP32 on the POS board is OPEN

TM Printer control: Either XON/XOFF or RTS/CTS

CustomerDisplay control: DTR/DSR

Notes:
CustomerDisplay control cannot be guaranteed with XON/XOFF.

Windows Settings

The recommended setting for the Windows FIFO buffer is disabled. This prevents timing delays caused by the data being held in the buffer. If customers want the setting to be enabled, the manufacturer recommends that the transmission buffer size be less than 16 bytes.

Device Settings When Software Requires XON/XOFF Handshaking with Jumper JP32 Open

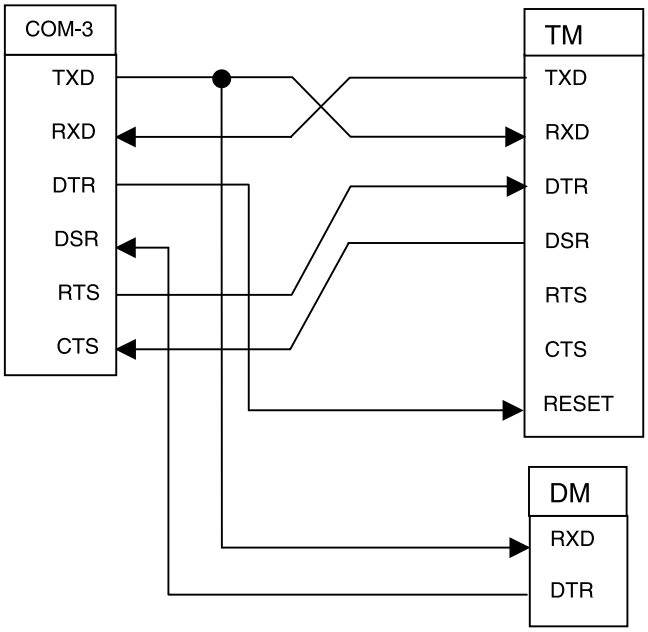
To set XON/XOFF handshaking, check that the IR-320 and TM Printer use the following settings:

- ❑ Handshaking for the TM-xxR Printer should be set to XON/XOFF.
- ❑ Set DIP switch 1-3 of the TM-xxR Printer to ON. (The default setting is OFF.)
- ❑ Set Jumper JP32 on the POS board to OPEN. (The default setting is SHORTED.)
- ❑ The recommended setting for the Windows FIFO buffer is disabled. This prevents timing delays caused by the data being held in the buffer. If customers want the setting to be enabled, the manufacturer recommends that the transmission buffer size be less than 16 bytes.
- ❑ The Customer Display is still controlled by hardware handshaking (DTR/DSR).

Notes:
You cannot use RTS/CTS handshaking to control the TM printer.
The Customer Display is set to DTR/DSR to keep it from going BUSY.

The illustration below shows the final electrical connection.

With Jumper JP32 on the POS Board OPEN



Device Settings When Software Requires XON/XOFF Handshaking with Jumper JP32 Shorted

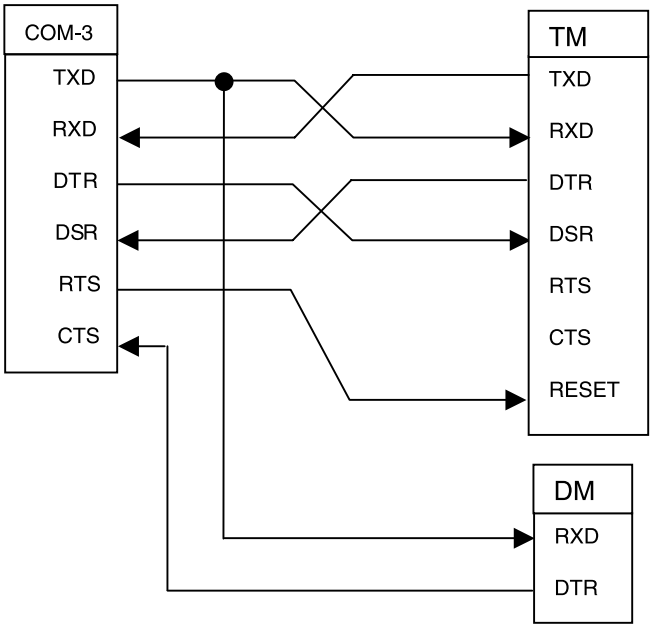
To set XON/XOFF handshaking, check that the IR-320 and the TM Printer use the following settings:

- ❏ Handshaking for the TM-xxR Printer should be set to XON/XOFF.
- ❏ Set DIP switch 1-3 of the TM-xxR Printer to ON. (The default setting is OFF.)
- ❏ Set Jumper JP32 on the POS board to SHORTED. (This is the default setting.)
- ❏ The recommended setting for the Windows FIFO buffer is disabled. This prevents timing delays caused by the data being held in the buffer. If customers want the setting to be enabled, the manufacturer recommends that the transmission buffer size be less than 16 bytes.
- ❏ The Customer Display is still controlled by hardware handshaking (RTS/CTS).

Notes:
You cannot use DTR/DSR handshaking to control the TM Printer.
The Customer Display is set to RTS/CTS to keep it from going BUSY.

The illustration below shows the final electrical connection.

With Jumper JP32 POS Board SHORTED (Default)



Device Settings When Software Requires DTR/DSR Handshaking

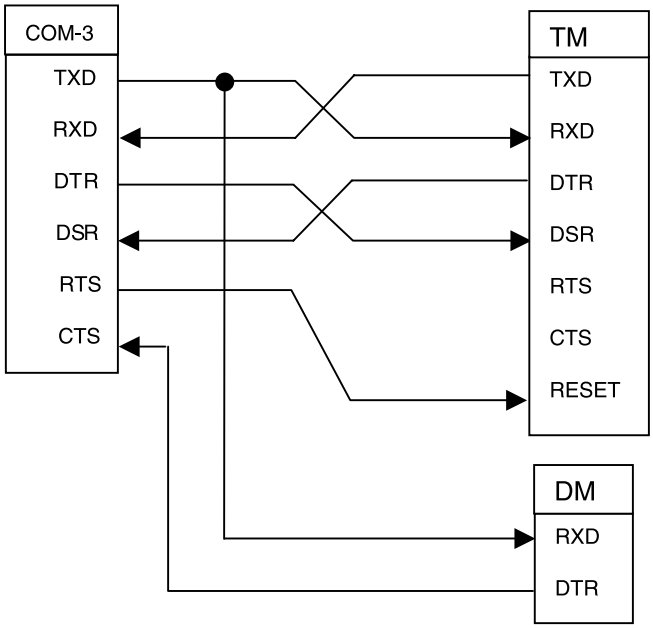
To set DTR/DSR handshaking, check that the IR-320 and the TM Printer use the following settings:

- ❑ Handshaking for the TM-xxR Printer should be set to DTR/DSR.
- ❑ Set DIP switch 1-3 of the TM-xxR Printer to OFF. (This is the default setting.)
- ❑ Set Jumper JP32 on the POS board to SHORTED. (This is the default setting.)
- ❑ The recommended setting for the Windows FIFO buffer is disabled. This prevents timing delays caused by the data being held in the buffer. If customers want the setting to be enabled, the manufacturer recommends that the transmission buffer size be less than 16 bytes.
- ❑ The Customer Display is controlled by RTS/CTS handshaking.

Notes:
You cannot use RTS/CTS handshaking to control the TM Printer.
You cannot use XON/XOFF handshaking to control the Customer Display, because the Customer Display can use DTR/DSR handshaking only.
The Windows serial driver (DLL), Visual Basic command, or MFC control the DTR/DSR flow.

The illustration below shows the final electrical connection.

With Jumper JP32 on the POS Board SHORTED



Device Settings When Software Requires RTS/CTS Handshaking

To set RTS/CTS handshaking, check that the IR-320 and the TM Printer use the following settings:

- ❑ Handshaking for the TM-xxR Printer should be set to RTS/CTS.
- ❑ Set DIP switch 1-3 of the TM-xxR Printer to OFF. (This is the default setting.)
- ❑ Set Jumper JP32 on the POS board to OPEN. (The default setting is SHORTED.)
- ❑ The recommended setting for the Windows FIFO buffer is disabled. This prevents timing delays caused by the data being held in the buffer. If customers want the setting to be enabled, the manufacturer recommends that the transmission buffer size be less than 16 bytes.
- ❑ The Customer Display is controlled by DTR/DSR handshaking.

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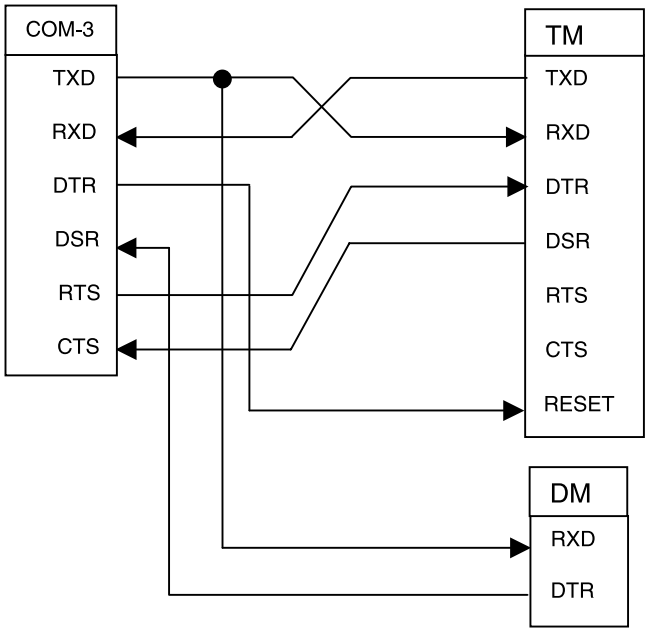
The illustration below shows the final electrical connection.

With Jumper JP32 on the POS Board



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